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WINTER & SPRING
ON THE SHORES
OF
THE MEDITERRANEAN

BENNET.

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WINTER AND SPRING

ON THE

SHORES OF THE MEDITERRANEAN.

TORRICELLA DI GRIMALDI.

MENTONE

From the East.

Vincent Brooks Day & Son, Lith.

GENOA ROAD.

WINTER AND SPRING

ON THE

SHORES OF THE MEDITERRANEAN:

OR,

The Riviera, Mentone, Italy, Corsica, Sicily, Algeria, Spain, and Biarritz,

AS WINTER CLIMATES.

By J. HENRY BENNET, M.D.

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS, LONDON,
LATE PHYSICIAN-ACCOUCHEUR TO THE ROYAL FREE HOSPITAL,
DOCTOR OF MEDICINE OF THE UNIVERSITY OF PARIS,
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"EUNS REDIENSQUE GAUDET."

FOURTH EDITION.

LONDON:
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To the Memory

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JOSEPH LANGSTAFF, Esq.,

FELLOW OF THE ROYAL COLLEGE OF SURGEONS ENGLAND;

PRESIDENT OF THE MEDICAL BOARD, CALCUTTA;

This Work

IS DEDICATED BY HIS SINCERELY ATTACHED SON-IN-LAW,

THE AUTHOR.

PREFACE.

The present work embodies the experience of ten winters and springs passed on the shores of the Mediterranean, from October, 1859, to May, 1869, under the following circumstances :—

Five-and-twenty years devoted to a laborious profession, and the harassing cares which pursue a hard-worked London physician, broke down vital powers. In 1859 I became consumptive, and strove in vain to arrest the progress of disease. At last, resigning all professional duties, I wrapped my robes around me, and departed southwards in the autumn of the year 1859, to die in a quiet corner, as I and my friends thought.

It was not, however, to be so. The reminiscences of former travel took me to Mentone, on the Genoese Riviera, and under its genial sky, freed from the labours and anxieties of former life, to my very great surprise, I soon began to rally.

The second winter I wished to find a locality even more favoured, one more in the stream of life, present or past, and sought for it in Italy. The search, however, was vain, and the unhygienic state of the large towns of that classical land partly undid the good previously gained. So I retraced my steps, and again took refuge in quiet

healthy Mentone. The second trial proved even more satisfactory than the first. I gradually attained a very tolerable degree of convalescence, and once more my thoughts instinctively reverted to professional studies and pursuits.

To return to the arena of London practice would have been folly for one just recovering from so fatal a disease. I therefore determined to adopt Mentone as a permanent winter professional residence, merely resuming London consulting practice during the summer months. Since then I have adhered to this plan, and have spent the winters at Mentone. Between the close of the Riviera winter season, and the resumption of professional duties in London, I take a few weeks' holiday, in April and May, and every year have employed the time in the investigation of the climate and vegetation of other countries on the shores of the Mediterranean. These travels have been conscientiously undertaken with the view to discover a better winter climate, if such exists, in this part of the world, both for my own advantage and for that of others.

Hitherto I have not succeeded in finding a better climate, and the results of all my researches may be embodied in a few words. In the sheltered regions of the Mediterranean, west of Greece, there are two kinds of winter climates. The mild and dry, viz.: the Genoese Riviera, and the east coast of Spain. The mild and moist, viz.: Corsica, Sicily, and Algeria. I must refer to the book itself for the data on which this statement is founded.

The work was originally a mere essay on the winter climate and vegetation of the Mentone amphitheatre, and was published in 1861. It has expanded, in successive editions, until it may now be considered a careful study of the winter and spring climates of the shores of the Mediterranean in general. This edition contains an account of the wanderings in search of health quarters, for winter and summer, in Italy, Corsica, Sicily, Algeria, Spain, and the Italian lakes, with a short description of Biarritz and Arcachon. The purely scientific character has been partly laid aside, and the thoughts, fancies, and travelling impressions of a long period of invalidism have been recorded.

I have endeavoured to render the description of the Mentone district, where I reside in winter, as complete as possible. Mentone has become Menton, a French town, but I have retained the Italian denomination, because it was the one by which I first knew this smiling spot, and because I prefer the word.

It has been said, on the highest authority, that "the race is not to the swift, nor the battle to the strong." As a physician, I have seen many of the swift and many of the strong arrested in their career by serious sickness, and this is probably one of the principal ways in which the decree is verified. I have endeavoured to help and cheer such sufferers, as well as weaker ones, by showing that even when the active, ambitious stage of life is brought to a close, if life itself is spared, there is still much left to enjoy. I have endeavoured to show that by the study

of nature not only may a charm be thrown over the hours of invalid leisure, but information, useful to others, may be collected.

May I be allowed, in conclusion, to say to those who read this book, stricken by physical affliction, that they will find in communion with nature, an inestimable source of solace, quite compatible with other and more serious thoughts. By so occupying their time they will most readily attain that frame of cheerful, contented resignation which is all but indispensable to their recovery. Let them try to depart from their native land cheerfully, if they are called upon to do so, and to return cheerfully. In a word, let them adopt the motto assumed by the valued relative to whom I have dedicated my labours, on his return from India, where he had spent forty years in positions of honour and difficulty,—"Going and returning he rejoiceth."

"Euns rediensque gaudet."

60, Grosvenor Street,
May 15 *to October* 15.

Mentone,
October 20 *to April* 20.

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The Frontispiece is chromolithographed from a water-colour of Mr. E. Binyon, by Messrs. Brooks. The woodcuts are by Messrs. Butterworth and Heath, from sketches and from photographs by M. Davenne and by Mr. W. Rouch. The Algerine wood engravings are principally from photographs by Messrs. Geiser, of Algiers.

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PART I.

THE

GENOESE RIVIERA AND MENTONE.

CHAPTER I.

INTRODUCTORY REMARKS.

THERE are few Italian travellers to whose mind the word "Riviera" does not recall the recollection of happy days of leisurely vetturino progress, along a sunny, picturesque shore, overshadowed by bold mountains, and inhabited by fishermen who, on a fine autumnal evening, often seem to realize the scene of the market chorus in "Masaniello." When, overtaken by ill health, I was obliged to abandon the hard work of active life, it was a consolation to me to know that I could migrate to this sun-favoured coast, and conscientiously spend the dreary winter in legitimate idleness, in a spot which memory painted in glowing colours. In this instance, the memories of the past were fully verified by the realities of actual experience; and now that rest and mild southern winters have restored me, in a measure, to health, I am desirous to make known the Riviera, and especially Mentone, to the tribe of sufferers obliged to fly from England—"merrie," in winter, only to the hale and strong, who can defy and enjoy the cutting winds, the rain, the snow, and the frost of a northern land.

The peculiarly mild climate of western Italy, and especially of the coast-line of the Gulf of Genoa, known under the name of Riviera di Levante, and Riviera di Ponente, or Eastern and Western Riviera, is more referable to the protection afforded by mountain ranges than to latitude. The Alps and Apennines form an immense screen to the north-east, as will be perceived on consulting the panoramic map of Italy and the adjoining countries that precedes this chapter. The Swiss Alps, which terminate rather abruptly in the plains of Piedmont by the grand Alpine heights of Mont Cenis, Mont St. Bernard, Mont Simplon, are continued in Savoy and Dauphiny down to the Mediterranean at Toulon, Hyères, Cannes, and Nice. From Nice the mountain range, which then takes the name of Maritime Alps, skirts the shore of the Gulf of Genoa in a north-easterly direction as far as that city, and in a south-easterly direction as far as Lucca. At Genoa it unites with the Apennines, or rather becomes the Apennines. At Lucca, leaving the coast, the latter occupy Central Italy, forming a backbone, as far south as Reggio.

It is owing to this geographical fact that the health climates of Italy are limited to its western shores. The mountains we have described separate Italy into two longitudinal sections, from Nice to the straits of Messina, and as these mountains rise from four to nine thousand feet in height, they constitute a barrier which protects the entire western coast-line from the north-east winds of central and northern Europe. Thence a totally different winter climate throughout the Italian peninsula, on the east and west of the Apennine ridge. On the eastern, or Adriatic side, in the plains of Piedmont, Umbria, and the Marches, owing to the predominance of the cold winds from the centre and east of Europe, the winter and spring are very much colder than on the western or Mediterranean side; the one on which we find the Italian pleasure cities, Pisa,

Florence, Rome, Naples. The western coast of Italy is not only thus protected from the north-east winds, but open to the warm south-west winds, which very often blow from the Mediterranean during autumn and spring, and bring with them warm sea-currents. Along the western Riviera, from Genoa to Nice, and on the south-eastern shores of France, from Toulon to Nice, protection from north winds is still greater than on the west coast of Italy.

This protection from the north-east, and exposure to the south-west, gives to the entire region described, from Toulon to Reggio, a mildness of winter climate which latitude alone would not impart, but differing in degree according to locality. Thus Mentone, and St. Remo, two of the most sheltered and warmest spots on the north coast of the Mediterranean, are situated only in latitude 43° 45′, between thirty and forty miles more to the north than Toulon (43° 7′) or Marseilles (43° 17′). But the latter are, the one less protected, the other unprotected, northwards, by mountain ranges, and consequently, in the latter sharp frosts take place every winter. Nor is this surprising, when we consider that in the north and centre of Europe the ground is often covered with snow for many months during winter, and that a high wind travels at the rate of from thirty to forty miles an hour. The distance, say from the highest Swiss mountain as represented by Mont Blanc, to the Mediterranean, is not more than a hundred and sixty miles. A high north wind will not only reach the coast-line in a few hours, where unimpeded by mountains, bringing with it cold weather to all unprotected regions, but cross the Mediterranean and bring cold rains to Algeria, and to the north of Africa.

During the winter the most protected and warmest part of this south-eastern coast of France and western coast of Italy, the undercliff of central Europe, is the Riviera di

Ponente, or Western Riviera, extending from Nice to Genoa. The exceptionally mild winter climate of this region is principally to be attributed to the great height of the mountain range skirting. the shore, and to its extreme proximity to the sea. As one of its names implies (Cornice), the Riviera is a mere ledge or coast-line at the foot of the mountains, which protect it north and east. My knowledge of the Riviera is principally derived from ten winters' residence at Mentone, for I have merely examined the other regions of the Riviera as a traveller. The general physical, geological, meteorological, and botanical conditions of the coast are, however, so far identical that the facts observed in one region must apply to all, with such slight modifications as the greater or less amount of shelter implies. I shall first describe Mentone, the mountain amphitheatre in which it is placed, and its climate, and I shall then point out in what respect the other regions of the protected undercliff differ from Mentone.

The opening of the railway from Paris to Mentone has rendered this lovely region very easy of access, even to confirmed invalids, and I believe that the time is fast approaching when tens of thousands from the north of Europe will adopt the habits of the swallow, and transform every town and village on the coast into a sunny winter retreat. I may remark that the Riviera is the first point where birds of passage from the north make a halt for the winter.

OUTWARD BOUND.

CHAPTER II.

MENTONE.

SITUATION—CLIMATE AS SHOWN BY VEGETATION.

"Indi i monti Ligustici e Riviera
Che cor aranci e sempre verdi mirti,
Quasi avendo perpetua primavera
Sparge per l'aria, bene olenti spirti."
ARIOSTO, Canto primo, lxxii.

MENTONE is a small Italian town of five thousand inhabitants, situated in latitude 43° 45′, nineteen miles east of Nice, at the foot of the Maritime Alps. It is the first station out of Nice, on the Cornice road to Genoa, and was the largest town of the principality of Monaco before its annexation to France along with Nice.

The Gulf of Genoa is formed between Nice and Lucca, by the Maritime Alps and the Apennines, the immense masses of which descend to the sea so abruptly in some places as to leave no shore, their beetling crags terminating directly in the sea. This is the case immediately behind and to the eastward of Nice. Owing to this circumstance, there was formerly no continuous carriage road from Nice to Genoa. The land communication between these cities was carried on by means of a very picturesque, but very unsafe mule track, along the rocky coast. The carriage road that now exists was commenced by Napoleon at the beginning of the century, for a military road, all but indispensable when Italy was annexed to the French Republic. He left it in a very unfinished state, but it has

since been completed by successive governments. Until within the last few years this road was very unsafe after heavy rains, owing to the absence of bridges over some of the torrent rivers, and to frequent landslips. After the tropical rains to which the Riviera is subject, owing to the mountains that fringe its shores, these rivers roll immense masses of water to the sea, and thus either become impassable for a time, or are crossed with difficulty, and even danger. In former days, every winter, carriages were overturned and carried towards the sea, and sometimes travellers drowned, but such catastrophes have now ceased to occur, most of the rivers being now crossed by good bridges.

The road has been carried in many places over and along high mountains and precipitous cliffs. Where the shore exists, it is generally a mere rocky, shingly, or sandy ledge beach, from which the mountains rise directly. In some points, however, where rivers reach the sea, there are small plains at the foot of the mountains, as at Andora.

On leaving Nice for Genoa, the road at once begins to ascend the Turbia, a shoulder of the Aggel. This mountain is about 3000 feet high, and is one of the spurs that run directly into the sea. It is at its western base that the fair city of Nice lies. The ascent occupies two hours, the road reaching an elevation of 2100 feet, two miles before arriving at the village of Turbia. The descent occupies an hour and a half, and at its termination is situated the town of Mentone. As the traveller ascends the Turbia from Nice, he obtains a very beautiful panoramic view of the town, and of the mountain-circled plain in which it lies. The eye rests with interest and pleasure on the eminence that commands Nice, crowned in former days by the old fortress, near the outlet to the valley of the Paillon river which pierces the background of huge

mountains to the north-east, and on the beautiful coast-line, as far as the distant Esterel range. It is a very lovely view, especially in the afternoon, when the sun, passing to the south-west, casts its radiance over the scene. Indeed, I should advise travellers Mentone bound, not pressed for time, or over-burdened with travelling "impedimenta," to abandon the railway at Nice, to sleep there, and to drive to Mentone, hiring a private carriage for the purpose. There is not a more beautiful drive in Europe, and by rail it is entirely lost. The start from Nice should be made about twelve o'clock, so as to have the south-western sun to illumine the road all the way. First impressions are of great importance, and the drive from Nice to Mentone is so picturesque that it should always be taken by health tourists, and especially by future sojourners at Mentone, if the weather is fine.

The railway, now open from Nice to Mentone, on the Italian frontier, much facilitates this stage of the journey, to those who wish to travel rapidly. Moreover, skirting the foot of the mountains, passing across lovely bays, through many short tunnels, it gives glimpses of much picturesque coast scenery. Still, the traveller who adopts it loses many beautiful mountain views, of a character totally different from what is seen in mountain regions in the north of Europe.

When the village of Turbia has been reached, and the descent begins, a panorama even more glorious presents itself to the eye. At our feet lies Monaco, crowning a promontory that advances into the sea and forms a small port. As the road descends, winding along the mountain side, a brown sun-burnt village appears—Roccabruna, clinging to the rocks. Then a corner is turned, and behold a magnificent mountain amphitheatre appears, that of Mentone. The higher mountains, receding round a

beautiful bay opening to the south-east, form this amphitheatre, the centre of which is about two miles from the sea-shore.

The coast outline, which is about four miles in circuit, is divided into two unequal bays, the east and the west, by a hilly spur or buttress gradually sloping from one of the higher mountains to the sea, and on the sides of which climb the houses that constitute the old town of Mentone. The space between the sea and the mountains that form the amphitheatre, mountains between 3000 and 4000 feet high, is occupied by a series of hills resting on the flanks of the higher range. They slope gently to the shore, and are divided by numerous ravines and torrential valleys. The higher mountains, of a greyish-white oolitic limestone, are generally precipitous and bare, with the exception of a few maritime firs in groves. Most of the lower hills, which rise gently to a height of from 500 to 1500 feet, are densely covered with olive-trees, and present at a distance the aspect of tree-covered, rounded ridges, gently descending to the sea.

The entire bay and the town of Mentone, with its background of swelling olive-clad hills closed in by the amphitheatre of mountains, are thus thoroughly protected from the north-west, north, and north-east winds. The position of the town, with reference to the bays, will be best understood by referring to the frontispiece, which is taken from some projecting rocks at the eastern extremity of the eastern bay.

To thoroughly understand and appreciate the district, and its singularly protected character, a boat should be taken and the panorama viewed a mile or two from the shore. The extreme beauty of the coast will amply repay the trouble. Thus seen, all the details are blended into one harmonious whole; the two bays becoming one, and

MENTONE (FROM THE, WEST).

the little town scarcely dividing them. The grandeur of the semicircular range of mountains, generally steeped in glorious sunshine, also comes out in broad outline. These mountains positively appear to all but encircle the Mentonian amphitheatre in their arms, to thus separate it and its inhabitants from the world at large, and to present it to the blue Mediterranean waves, and to the warm southern sunshine.

Behind the mountains which thus form the background of the Mentonian valleys, are still higher mountains rising in successive ranges to an altitude of from 5000 to 9000 feet. The higher ranges constitute the main chain of the Maritime Alps. They extend from east to north-west far inland, until they mingle with the high Alps of Savoy and Dauphiny. The presence of this second and higher mountain range greatly increases the protection afforded to the coast-line by the lower one, and partly explains its immunity from the winter cold of continental Europe.

Thus, the Mentone amphitheatre, being only open to the south, south-east, and south-west, the mistral, as a north-west wind, is not at all felt, and but slightly as a deflected south-west wind. All the northerly winds pass over the higher mountains and fall into the sea at some distance—several miles from the shore. When they reign, there is a calm not only in the bay at Mentone, but for some distance out at sea; whilst at a few miles from the shore it may be crested and furious. This is constantly observed on ascending high ground. Owing to the Mentonian bay opening to the south-east, the south-east (the *sirocco*), the direct south, and the south-west winds, blow directly into the bay, and, when strong, occasion a heavy, rolling swell. The latter, the southerly winds, to which alone Mentone is directly exposed, are never cold. When, however, hurricanes reign in continental Europe from the

north-west or north-east, the wind sometimes turns round the protecting mountain west and east, and is really felt on the shore, much to the surprise of those who have been told that north winds cannot by any possibility reach this favoured region.

Climate as shown by Vegetation.

Owing to the complete protection the mountains afford to Mentone from the west, north-west, north, and north-east winds, owing to its southern exposure, and to the reflection of the sun's rays from the sides of the naked limestone mountains which form the amphitheatre, its winter climate is warmer than that of Nice, its neighbour; indeed, it is warmer than that of any part of the northern or central regions of Italy. That such is the case is shown by the vegetation. The latitude of Palermo, five degrees further south, must be reached, to find the same vegetation —groves of lemon-trees growing in the open air, like apple trees in an English orchard. Even at Palermo, which looks to the north, the lemon orchards are protected by walls, or the trees are planted in ravines, as is also the case in the warmer regions of Italy and of Spain, where the lemon grows and thrives.

The peculiar mildness of the winter at Mentone may also be partly accounted for on geothermal (earth heat) grounds. It is well known that even in England the warmth imparted to the surface of the ground by summer heat is not exhausted by radiation until the winter be far advanced. Thus, at three feet from the surface it is only at the end of January that the soil has cooled to its lowest point; that is, has exhausted by radiation the heat accumulated during summer. How much greater must be the winter radiation of summer-accumulated heat in a locality like Mentone, surrounded by an amphitheatre of

limestone rocks, which become heated to an extreme extent during the long summer days, under the rays of an all but tropical sun, and in a cloudless sky! The importance of this element, in the consideration of climate, will be better appreciated when we know that it takes several months for a thermometer to cool down after the glass tube has been closed by momentary exposure to the flame of the blowpipe.* It is only after that lapse of time that the glass has regained a normal state, and that it can be graduated, when scientific precision is in view. So retentive of heat are most solid bodies, and so long a period of time does it take for them to lose by radiation heat once acquired.

The exceptional warmth of the winter climate of Mentone, even for the Riviera, is proved beyond all question or doubt by the presence of groves of large, healthy Lemon-trees, which ripen their fruit every year in the fullest perfection, in nearly all the ravines and on the warmer hill-sides, wherever water can be obtained. Constant irrigation, summer and winter, is necessary for their cultivation, as well as great summer heat and a mild winter temperature. The Lemon-trees at Mentone are, indeed, much more numerous than the Orange-trees, although many fine plantations of the latter are found throughout the district. The presence, however, of Orange and Lemon-trees growing in healthy luxuriance, as forest trees, in the open air, does not prove that we have reached a tropical climate, where cold is unknown. When the weather is dry, and the sky is covered with clouds, which arrest terrestrial radiation, the fruit of the Orange-tree will bear 7° Fah. below the freezing point, without injury, and Orange-trees themselves are only killed by 11 degrees of frost. The Lemon fruit, under similar circumstances, can

* Drew's Practical Meteorology, p. 42.

only bear 5° without injury, and the trees are killed by 8° or 9°. But if the cold weather sets in after a thaw, or after rain, if the atmosphere is loaded with moisture, or if the sky is cloudless, and the radiation from the earth is thus rapid at night, either the fruit or the trees may perish at a much higher temperature. The inhabitants of southern districts seem to think that a less amount of frost is fatal to Lemon and Orange-trees; but my own experience during ten winters corroborates the above data, taken from Roubaudi's work on Nice—a very scientific book.

On one side of the eastern bay, near the Pont St. Louis, the warmest and most sheltered region of Mentone, the side of the mountain is partially covered with Lemon-trees, which ascend on terraces to a considerable height above the sea. They are in flower, and perfume the air at all seasons. In these "warm terraces," protected from all winds but the south, exposed to the sun from morning to night, winter may be said not to exist. Throughout its entire duration insect life is abundant. The lively lizard never hybernates, but daily basks and sports in the sun, and the brilliant dragon-fly may be seen darting about in mid-winter. The spider spins his web, finding abundant food, and the swallows or rather the martins never migrate; they are constantly seen circling among the rocks. The Harebell, the red Valerian, Violets, and our own pretty Veronica, flower in December and January in this favoured spot long before they appear elsewhere.

The lemons produced at Mentone are known throughout Northern Europe, and fetch a high price in the market. The Lemon-tree flowers here all the year through, never resting—a fact which implies constant and active vegetation, without any period of repose. The crop is gathered at four different epochs, the trees bearing at the same time flowers and fruits of all sizes. The existence

of large Lemon-trees in groves, from twenty to thirty, or more, years old, without artificial protection, and their profitable cultivation throughout the year, prove that where they grow there must have been freedom from severe frost for many years. I was informed, however, that about thirty years ago nearly all the Lemon-trees in the country were destroyed in one night, which may account for no very old trees being seen.

During the ten winters that I have passed at Mentone, I have found a great difference in the degree and the severity of the cold from year to year. In the more severe winters, with a northerly wind, I have repeatedly known the thermometer descend below zero several nights consecutively, near the seashore, and at the outlet of the torrent beds, especially in the western bay. Slight films of ice then form on shallow pools on the road and near the torrents, especially in the western bay, which is more exposed to down-draughts from the mountains; and the highest mountain range may be covered with snow to the level of the olive groves. This untoward state of things generally occasions great dismay in the minds of the inhabitants, whose principal riches are the lemon groves. I have known many sit up for several nights, in the greatest consternation, watching the thermometer. Indeed, there is in these cases quite a panic with reference to the lamentable condition of the weather. Such feelings and fears plainly indicate that frost and snow are unusual and unwelcome visitors. Snow often, however, lies for several days on the higher mountains, thereby giving them a most picturesque, Swiss-like appearance.

On very exceptional occasions snow may even fall on the shore-level, melting as it falls. In January, 1864, there was a frost of unusual intensity throughout the south of Europe, in Italy and Spain especially. At Mentone it

froze on the sea-level several nights consecutively, both in the eastern and western bays, and snow fell on the shore-level. For several days it lay in northern and shaded situations, although a bright sun was shining. Many Lemon-trees were killed, and much fruit destroyed. But the trees that were killed were all at the outlet of valleys running up to the mountains, where they had been planted, I was told, in opposition to previous experience. Every twenty or thirty years an exceptionally intense frost occurs, and kills the Lemon-trees in all but really warm and sheltered positions. The culture of the lemon being very remunerative, the agriculturist is apt to despise these warnings, and to endeavour to extend its range. All goes well for a time, and then the exceptional frost year occurs, destroys the trees imprudently planted, and marks the limit of cultivation.

It is the same in England. Every now and then a very severe winter occurs, and kills many of the shrubs and trees imported from all parts of the world, and apparently well established in our country. It requires nearly half a century to prove the thorough adaptability of a foreign shrub or tree to a new climate. With us such trees as the Oak, the Elm, the Hawthorn, the Chestnut, are either native or really acclimatized trees. They do not so readily admit of an addition to their number as might at first be imagined. Thus, the severe winter of 1860-1 saw the destruction of many apparently established favourites.

On no other part of the Cornice road do Lemon-trees grow as freely as at Mentone. At Cannes they are all but unheard of, and at Nice they only grow in sheltered and protected sites, and not luxuriantly. As I have stated, the latitude of Sicily, five degrees further south, must be reached to find them growing with equal luxuriance; and even there they are generally protected by walls, and

refuse to grow wherever there is a down-draught from neighbouring mountains.

The Orange-tree flowers but once in the year, and bears one crop of fruit only. It is a more hardy tree, as this botanical fact implies, and can bear without injury, as we have seen, several degrees of frost. Still, as the fruit matures in autumn and winter, it does not attain excellence in regions where the winter is cold. There are many fine groves of Orange-trees at Mentone, especially the one at the base of the Cap Martin. Although the trees are large, and the fruit ripens well, the oranges are scarcely equal to those we get from the Azores, from the Balearic Isles, or from Malta. This deficiency, however, appears to be owing more to the selection of inferior varieties than to defective climate. Some trees in private gardens, and others growing near Monaco, only a few miles distant, and in a locality presenting the same climatic condition, are as good as any in Europe, if allowed to remain on the tree until really ripe.

To bring out the real sweetness of the orange, it should be allowed to remain on the tree all summer. It is insipid during the hot months, but after the autumn rains fills with luscious juice. This is seldom or never done, however, where oranges are cultivated for profit.

There are many varieties of the Orange, some of which are much sweeter, and ripen earlier than others, as, for instance, the Maltese and Majorca orange; but then they are mostly thin-skinned, and do not keep as well as the thick-skinned or Portugal variety. The latter are, therefore, preferred as the best for exportation. Oranges intended for exportation are gathered in January and February, before they are ripe, as otherwise they would not bear the packing and transport. They do not really become ripe and sweet on the tree before April, or even

May—long after they redden. Those exposed for sale at Mentone are a part of the oranges picked under these conditions. The only way, therefore, to have really good oranges is to purchase the crop of one or more trees, to leave the oranges on the tree until they are quite sweet and ripe, which is not until April, or even May, and to pick them as wanted.

The crop of an orange grove or orchard is generally sold on the tree, to speculators from Paris, for a given sum. The latter undertake the picking and packing, and in January and February the town and country are quite alive with their operations. Troops of girls and women may be seen daily coming down from the mountains with large baskets of oranges or lemons poised on their heads. They carry as much as a hundred-weight, or more, at a time, with apparent ease. They are generally barefooted, to enable them to get a better grasp of the rocky paths, and look very picturesque. Only the strongest and healthiest girls can undertake this work, and that but for a few years. They go to and from the mountains, a distance of from two to four miles, several times a day, and earn about fifteen-pence.

Throughout the winter the orange groves, covered with their golden fruit, form a charming feature in the landscape, reminding the looker-on of the garden of the Hesperides of olden times. From the regularity of its growth, the abundance and golden hue of its fruit, the orange-tree is a much more picturesque object than the lemon-tree. The fruit of the latter is always either green or a pale yellow, and the habit of the tree, young or old, is rather straggling. Both lemon and orange-trees, whenever they emerge from the valleys, contrast vividly, by their bright green tinge, with the sombre hue of the olive-trees.

The Olive-tree is the real lord of the Mentonian amphitheatre, covering the lower hills and the base of the higher ones to a height of about two thousand feet above the level of the sea. In the south of France the olive-tree, however fertile, is a miserable object. It is generally treated as a pollard, is small and dwarfish, and looks much like a mutilated dust-covered willow. As soon, however, as

THE LEMON GIRL.

the Esterel mountains are passed, and Cannes is reached, we enter on a different climate, more protected in winter, and more suited to its growth. It is allowed to grow as a forest tree, and at once assumes a dignity and grandeur which quite surprises those who have only seen the stunted specimens of "la belle Provence." The Olive-tree is only destroyed by a frost of fifteen or sixteen

degrees Fah., so that it is not injured or killed on the Riviera by exceptional winters, as are the delicate Lemon-trees. But the young shoots and the fruit are frozen and irremediably injured when the thermometer falls six or seven degrees below the freezing point. No frost, however, to which this region is exposed, even once in a century, can injure the tree, so that it goes on growing indefinitely, and attains its natural period of longevity, as do with us the trees that are natives of our country, the Birch, the Beech, the Scotch Fir, and the Oak. Like them, it resists the terrible cold of exceptional years, such as the years 1860-61, and reappears in spring, hale and vigorous, when whole armies of apparently naturalized foreigners have succumbed.

The longevity of the Olive-tree, in a congenial climate like that of Mentone, may indeed be said to be indefinite. There are Olive-trees still alive at Monaco, at the Cap Martin, and elsewhere, which are supposed to be coeval with the Roman empire. It is a slow-growing tree, and forms cartloads of hard roots, which fill and cover the ground where it stands. When, after several hundred years, the trunk decays, the bark remains alive. As the decay progresses, the tree splits, as it were, into two, three, or more sections. The bark twists and curls round each of these decayed sections, and unites on the other side. Then, instead of the old tree, we have, in its place, two, three, or more, apparently separate, although in reality all growing from the same root. When these in turn die, new shoots spring up from the old roots, and thus the life of the tree is indefinitely prolonged. The old Olive-groves are, from this cause, indescribably singular and interesting, presenting on every side evidences of hoary old age. All the stages of growth above described may be witnessed within the space of a few yards; and the

partially decayed, partially split, gnarled, twisted, curved trunks are picturesque in the extreme.

The healthy full-grown Olive-tree is really very beautiful. It is often as large as a fine old oak, but with fewer limbs and a more sparse foliage. In the variety of the Olive-tree generally cultivated on the Riviera the terminal extremity of the branches hangs down, so as to give it the characteristic appearance of a weeping ash or willow. The "weeping" character of the tree is, however, much less marked than in those just mentioned, owing to the more scanty foliage, and to the extremities of the smaller branches only drooping. To some who are sad, to mourners, the dense masses of these sombre grey-coloured trees, with hanging foliage, give a sorrowful, mournful character to the landscape. But it is only those who have sadness in their hearts, a sadness which reflects on nature, who view the Olive-tree in this light. To others, the play of the wind on the ever-moving pendulous masses of foliage, and that of the sun and light on the dark green leaves, especially when seen in masses from a height above, is both beautiful and soothing.

I never fully appreciated the beauty of the Olive-tree, although I had seen it in its glory in southern Italy, until I had passed a winter under the shadow of an Olive-clad mountain at Mentone. The fact is that the Olive-tree, like our own evergreen Spruce and Scotch Fir, is much more beautiful in autumn and winter than in summer. At the latter period of the year most of the leaves are old, and have become browned by the summer heat and by at least a year's existence, so that the entire tree often assumes a faded, dingy hue. In early summer, too, the yellow hue of the pollen of the male flowers of Conifers gives a yellowish tinge to the entire tree, owing to their extreme abundance. In spring the new leaves of the

evergreen tree form, in summer and autumn the old ones are in a great measure cast off, and when winter comes, it is in all its glory. It has thrown off its worn-out damaged garments, and is again clothed in the grace and beauty of early youth.

Thus, instead of the brown, dust-coloured foliage which the pleasure traveller sees in his autumn journey, the winter invalid sees leaves, sombre it is true, but fresh and beautiful to look at, either from near or from afar. The scantiness of the Olive-tree foliage in winter, also, is an advantage. It lets the sun filter pleasantly through, breaking its power without concealing it, and rendering a walk or a lounge in "the Olive-groves," even in the hot midday sun, a pleasant resource. Many and many an afternoon have I spent at Mentone, in December and January, sitting with a book under the shade of an Olive-tree.

The predominance of these Olive-groves gives a very peculiar character to the Mentonian amphitheatre and to the Riviera in general—a Scriptural character, if I may so term it. The Olive-tree, which is a native of Asia Minor, or of Palestine, is the tree of the Holy Land, and is constantly mentioned in Scripture. Thus its presence, as the principal feature of the surrounding vegetation, imparts an Eastern charm to the place, taking the mind back to the Mount of Olives, to Jerusalem, and to the sacred scenes of Holy Writ. We feel that it was in such a land that the events we have read of from our childhood upwards with reverence and interest, took place. We feel that we are nearer to these scenes than in our own northern island, and we really understand what it is "to sit under the Fig-tree," and to walk "in the Olive-grove."

The branches of the Olive-tree are not numerous. They spring from the trunk, near the ground; or rather, the

AN OLD OLIVE-TREE.

trunk generally divides into two or three branches. The latter extend, at an acute angle, a long distance from the tree. Their foliage being terminal, and the wood non-elastic, they are not adapted to bear a heavy burden, for it acts as a weight at the extremity of a long lever. Thus, when snow fell thickly in the rigorous winter of 1864-5, without melting—an unheard of event—large olive branches broke off by hundreds, and great loss was thereby entailed on the country.

In northern regions the Pines, the Firs, indeed, Conifers in general, have their branches arranged in successive stages, as it were, which extend only a short distance from the trunk of the tree. These branches, also, either droop downwards by natural conformation, so as to throw off the snow which falls on them, or bend downwards, so as to shake it off. The resin which fills the wood of the tree gives the necessary elasticity, and enables it thus to bend and throw off the snow, when the poor Olive-tree resists the unnatural load and breaks.

The Olive-tree flowers in April, and bears every year. But a year of abundance is generally followed by one, or even two, of comparative sterility. It has to be well manured every second or third year, in order to secure its fruitfulness. For this purpose the favourite manure is old woollen and linen rags, which are imported from Italy in boat-loads; and such rags! I verily believe that even our paper manufacturers would scorn them. A trench is dug round the trunk of the tree, at some little distance —about two feet deep, and three feet wide. In this trench the rags are placed; they are then soaked with liquid manure, and covered up with the earth—a process which no doubt destroys a vast amount of life. Although done by mere routine, this system of "arboriculture" is chemically judicious. Wool contains nitrogen like all

other animal substances, so that the rags must be, and are, valuable as manure.

The olive-berry ripens in the autumn, becomes black, and begins to fall off the tree in December and January. Some have the trees at once cleared by beating the branches with long canes. In that case the oil is not so abundant, but is of better quality. Others leave the berries on the trees for one, two, or three months longer; until, indeed, they nearly all fall off. The oil made from these berries is more abundant, but not so good. The olives are smaller than those which we eat pickled. The latter belong to another species of the Olive-tree, which is principally cultivated in Spain.

Picking the olive berries from the ground underneath the trees, is quite an occupation with old or infirm women, and with young girls. They earn about sixteen sous (8*d.*) a day, and their labour contrasts strikingly with that of the strong, ruddy, orange and lemon girls. Many, no doubt, commence as the latter, strong in youth and health, to end by olive-picking once the heyday of life is over. The poor olive-pickers, clad only in thin cotton dresses, are apt to become rheumatic, from crouching so long over the ground, at times damp from the winter rains. Such, too often, is the contrast between youth and age in the working classes in all countries.

The olives, once gathered, are taken to the olive-mills, where they are crushed, and the oil is extracted. These mills are picturesque buildings, situated in the ravines in order to command water. In some water is used alone, in others combined with horse-power. The olives are crushed by stone rollers; the pulp is put in stout cylindrical baskets, saturated with hot water, and subjected to great pressure. The water thus squeezed out carries the oil with it to vats, where it floats on the top and is

skimmed off. The water, when it has thus done its duty, is of a dark brown colour, and is constantly seen coming down the ravines, colouring the water-course.

The olive oil is often stored in large elegantly-shaped jars, quite large enough to contain a man hidden. On looking into a warehouse and seeing these large jars ranged in rows along the wall, I am always reminded of the eastern tale of "Hadji Baba and the Forty Thieves." These were evidently the identical jars in which the thieves concealed themselves during the night, and were exterminated so cunningly by Morgiana.

The hard roots and wood of the Olive-tree constitute the only fuel used at Mentone, the cooking being principally carried on by means of charcoal, as in France. The native population, however, seldom make fires, except for culinary purposes. They trust entirely to warm woollen garments even on the few really chilly days when the summits of the surrounding heights are white with snow, and glisten in the sun like the snow-capped mountains of Switzerland or the Tyrol.

Even strangers from the north, accustomed to large coal fires, or to stove-warmed rooms, for a great part of the year, seldom think of lighting a fire in a south sun-exposed room until evening, and then often more for companionship than from absolute necessity. On the exceptional cloudy and cold days, however, the "baskets" of olive-roots and branches disappear rapidly. They do their office, too, and warm us; whereas, in our own climate, such fires would be of no avail, a mere delusion.

Thus, in descending from the north, we have at last reached a region sufficiently sheltered and sufficiently near to the sun, for its rays to produce warmth enough to support human life with no other artificial assistance than that of clothes. We no longer require the dense forests

of more northern and more fertile regions. We are no longer dependent on the vast coal fields which the earth contains within its bosom, the remains of the dense vegetation of former periods of the world's history, the fossilized sunbeams, as it were, of ages far, far distant.

Another evidence of the exceptional warmth of the winter climate is the presence of large Euphorbia bushes and of large Carouba-trees. Some species of the Euphorbia, of which there are many, become shrubs in this region, with large ligneous stems. In many of the more protected regions they grow as large as Rhododendron bushes. At Nice I only found them as luxuriant in one spot, the south-east side of the castle hill. In Italy the latitude of Southern Sicily must be reached to find them equally flourishing. They are singular plants, and grow in the most arid spots, on heaps of stones on the seashore, in the crevices of rocks, yet with a vigour and luxuriance which is perfectly surprising. Their growth begins with the autumn rains, when they throw out a mass of light-green terminal leaves. They then produce numerous small yellowish-green flowers throughout the winter, early or late, according to species. The secret of the luxuriant verdure, under a burning sun, in the most arid spots, of such a mass of delicate foliage, is the existence of a kind of caoutchu in their white acrid juices. This gum prevents the evaporation that would take place from the leaves, and which would soon dry up the foliage of a plant growing under such circumstances, without some peculiar protection. The white milky sap of the Euphorbia is poisonous to man. I recollect reading about cases of poisoning at Malta, attributed to drinking the milk of goats that had fed upon them.

The elegant white silver-leaved Cineraria maritima is found abundantly in the same localities. It grows from

crevices in sheltered rocks, generally in the immediate vicinity of the sea, and often attains the size of a large bush. This pretty shrub has been introduced into our conservatories and summer gardens for the sake of its foliage, since the taste for foliage plants has become so general, and it is pleasant to find it in its native clime.

The Carouba, or locust-tree, is really one of the glories of this and of other barren but warm regions in the south of Europe. It is a beautiful evergreen tree, vigorous, fresh, and graceful, with an abundant light-green foliage. It grows in the most stony, arid, and burnt-up places, on rocks and on mountain sides where there is scarcely a particle of soil, and where its very existence is a marvel, a problem, a source of positive surprise and exultation to the beholder. Indeed, the Carouba may be considered an emblem of evergreen vegetation, and a perfect botanical demonstration. Such a tree can only live very partially from its roots, for they often only bind it to the rock on which it grows, by creeping into crevices, and laying hold of every inequality of ground. It must live in a great measure by its leaves, as most evergreens do, to a very considerable extent. The Carouba-tree bears beans in pods, very useful for the feeding of cattle. Each tree is said to produce, one year with another, twenty francs' worth of fruit. These beans have of late been introduced into England as food for cattle. In the almost rainless region on the south-east coast of Spain, between Valencia and Malaga, the Carouba-tree is one of the principal features of the scanty vegetation. In many sun-burnt, scorched districts, this tree, with the Olive and the Opuntia or prickly pear, are all but the only products of the soil. The similarity of vegetation indicates similarity of climate: dryness, summer heat, and winter mildness.

The existence of the Carouba explains why vegetation

is principally evergreen in arid rocky spots, where there is little or no soil, and where that little is in a great measure formed by the pulverization of rocks, or contains but slight nutritive elements, as sand, for instance. The scanty or poor soil will not feed plants that only bear leaves for a few months in the year, wherewith to extract nourishment from the air. So nature supplies their place by evergreens, which have all the year round millions of lungs, in the shape of leaves, pumping nourishment, in the form of carbon, from the air. In northern climates, in high latitudes, in arid sandy soils, it is the evergreen Conifers or Fir tribe, the Heaths, and the Hollies, that thus apply to the air for the nourishment refused to them by the soil. In southern latitudes, such as Mentone, it is the Orange, the Lemon, the Olive, and higher up, in cold mountain regions, Conifers again, as in the north, that perform the same part. Thus is explained the fact of the vegetation of the Mentonian amphitheatre, a mere rocky mountain-side, being nearly all of an evergreen character. No other kind of vegetation could live and thrive there. The few deciduous trees, such as Oaks, Planes, and Willows, that are found, are principally met with along the margin of the torrents as they approach the sea, where alluvial soil has been deposited, into which moisture percolates from the higher mountain regions.

Along with the Carouba may be mentioned the Pistacia Lentiscus, as peculiarly indicative of a dry, sunshiny, southern climate, and of a rocky, arid region. It is an evergreen shrub, which grows freely in the same regions as the Carouba flowering during the winter, and is very abundant between Nice and Ventimiglia, indeed all along the Riviera. I found it even more common in Corsica, where it contributes to form the maquis or brushwood, as also in Africa on the ramifications of Mount Atlas. It

forms, I believe, one of the chief botanical features of Palestine and Syria.

Above the Olive-tree elevation, that is, above 2000 feet or thereabout, Pines only are met with naturally, although fruit-trees, Apples, Pears, Cherries, and Vines are cultivated; as for instance around St. Agnes, a mountain village. The Pines occupy the lower central hills, when the soil is sandy or gravelly, from the shore level, and climb up their sides. Where not too precipitous, they also occupy the sides of the highest or back limestone mountain range. Behind the Mentone amphitheatre the Pines only occupy northern slopes until we reach the Col de Tenda. From the shore level the higher Pines appear mere shrubs, owing to the great elevation, but once they are reached, they prove to be respectably-sized trees. Still these Pine forests certainly contain no timber "fit for building men-of-war," as a member of the House of Commons stated during the debate on the cession of Mentone and Roccabruna to France. They contribute but little to the wealth of the country, and are only used as firewood, and for building purposes.

The Firs which cover the sandy hills, and climb up the limestone mountains, are principally the Pinus maritima, with the Juniper and the Pinus Halepensis or Aleppo Pine, the commonest conifers on the coast of the Mediterranean. They do not attain any very great height, but are healthy and flourishing. In one spot, in the grounds of the Madonna Villa, in the western bay, are some very fine specimens of the Pinus Picea, the stone or umbrella Pine, the classical Pine of Italy. One, more especially, a very beautiful tree, throws up a tapering stem surmounted by an immense umbrella-like mass of brilliant deep green foliage. There is something peculiarly Italian in the appearance of this noble tree, with its canopy of

rich green leaves extending table-like. In Italy it is so often a prominent feature in the landscape, that it becomes associated in the traveller's mind with the monuments and ruins indelibly stamped on his recollection. Indeed, when sitting under the shade of these trees, the deep blue sea at our feet, the clear sky above, and the sharp clear outline of the adjoining mountains around, it is impossible not to feel that we really are in Italy—notwithstanding diplomatic annexations. Isolated specimens only of this Pine are seen at Mentone. At Cannes, at the foot of the Esterel mountain, there is quite a forest of them. I presume a sandy soil is all but essential to their well-being, as it is for most Conifers. The Pinus maritima is one of those that thrive on calcareous soils. Thus at Mentone it covers the Cap Martin, a limestone rock on the sea level, as well as the higher Oolitic mountains.

The rarity of deciduous trees gives a peculiarly smiling, cheerful, summer aspect to the entire district, with its hills, ridges, and valleys, even in mid-winter. In no part of Italy or Spain that I have visited have I observed the universal winter verdure here witnessed. Even the far-famed bay of Naples, as seen from the sea on entering, offers to the traveller nearly as winterly an aspect in December as England or France. The high ground of Ischia, and of the continent, presents numerous naked Fig-trees and Vines, the aspect of which is very different to that of the green trees that cover the Mentonian amphitheatre. We meet with winter verdure in our own forests of Scotch or Spruce Firs, but then the winter sky is generally sombre, filled with masses of lead-coloured clouds, and the sun is obscured. At Mentone, on the contrary, the sun mostly shines, and generally throws a greater glow on the landscape in January than it does on our evergreen forests in July. The verdure at first appears rather sombre,

as it is principally formed by the Olive woods, the Orange and Lemon-trees generally hiding in the valleys, but the eye gradually gets accustomed to the hue. In the eastern bay, however, as we have seen, there are many groves of light-green Lemon-trees, occupying the open mountain side for the first 1500 feet in altitude.

The deciduous trees are principally Planes, Willows, and Fig-trees. The Willows line the margin of some of the larger torrents as they approach the sea. The Planes are planted in two avenues, for the sake of the dense and grateful shade they give in summer. One avenue is the main road from Nice, and is continued into the town; the other is along the banks of the torrent which descends from the mountain by the side of the Turin road, in the valley "du Carei." This latter is the principal summer promenade of the inhabitants. There are a few deciduous Oaks and Chestnuts scattered about the hills and the valleys.

The oriental Plane has been cultivated from time immemorial in Asia Minor and in Greece, and from the time of the Romans in Italy, but for its shade only, the wood not being valuable. In former days it was treated with great reverence and respect. No tree in these climates can be compared to it for beauty and density of foliage in summer. In the south of Europe, and in the East, it is hardy and vigorous, attaining very great size, and flourishing in the midst of towns. This latter power it owes in part to the habit of shedding yearly a portion of its bark; it thus, as it were, gets rid of its soiled outer garments, contaminated by the town atmosphere. The resistance of the Plane tree to city influences is well exemplified at Toulon. The dense and healthy grove that casts so impenetrable a shade on the "Place" in the very centre of the town, is composed entirely of Planes. Owing to this

tree bearing the pruning knife as well as an English holly, in towns the top branches are generally clipped back ruthlessly when spring arrives, so that they may form, by their new shoots, a regular canopy of verdure. Many of my readers have no doubt been awakened at early dawn by the chorus of innumerable birds that frequent the verdant grove of the market-place at Toulon. A similar chorus may be heard each evening in the trees growing in the market-place near the eastern bay at Mentone in the autumn and early part of the winter; indeed, until the leaves have fallen.

These trees do not lose their leaves until the nights become cold, so that they are often preserved until the end of December. The ball-like capsules which contain the seeds remain hanging from the terminal branches all winter. They are larger than in the American Plane tree, which we cultivate with success in England, and which, like the oriental, bears well the atmosphere of towns, as may be seen in Berkeley Square. The pruning takes place early in March. The new flowers and leaves appear in April, the former preceding the latter. The oriental Plane tree, although quite at home, does not appear, however, to reach its full size in the south of France and Italy. There is a Plane in the Gulf of Lepanto in Greece, the trunk of which is forty-six feet in circumference; and one on the Bosphorus, the trunk of which is one hundred and forty-one feet in circumference at the base. De Candolle thinks it must be two thousand years old, and that it is one of the largest trees in the world.

Fig-trees thrive, as everywhere else in Italy. Fortunately, however, for the lovers of the picturesque, they are not very numerous at Mentone. They lose their leaves early, by the end of November, and do not regain them until April, and their clumsy, graceless, weird-like

branches, are anything but ornamental during the winter. The fruit is of first-rate quality.

Owing to the absence of frost in all but very exposed situations, many of our English garden flowers, which are cut down by the first frosty night, continue to flourish and bloom all the winter through. This is the case, for instance, with the Geranium, the Heliotrope, the Verbena, the Nasturtium, the Salvia, and some kinds of Roses, including the China Tea-rose, which continue to flower throughout the winter in many gardens. The Nasturtium, an annual with us, becomes a perennial ligneous shrub, as in Peru, its native country. So does the Cobæa scandens, which has a ligneous stem, and flowers continuously in winter. There are also many flowers peculiar to much more southern climates, which bloom throughout the winter. But as I purpose devoting a special chapter to cultivated flowers and horticulture, I shall now confine myself to wild nature.

Wild, sweet-smelling Violets appear about the middle of December in the warmest spots. The Narcissus nivens, and some other flowers of the same genus are found equally early. By the end of January violets have become a weed, flowering from the crevices of every wall, along every path, and in every torrent-bed that the sun reaches. The delicate Lycopodium of our hot-houses and conservatories replaces or accompanies the mosses of the north, growing freely in all damp places throughout the winter. Wild Anemones of different species, some of which are very beautiful, begin to blossom in December or January. They are rapidly succeeded by Daffodils, Narcissuses, Hyacinths, Tulips, Gladioles, Hepaticas, and Primroses. All these flowers are found wild, but only in certain regions known to the "initiated" and to some of the donkey women. The white Alyssum, which we use for garden

edgings, is very common, and flowers throughout the winter, as does a large species of daisy.

Mignonette grows wild in some localities, on the terraces of the eastern bay for instance, but it has but very little odour, unlike the sweet-scented species (*Reseda odorata*) of our gardens, which is a native of the opposite, or African shore of the Mediterranean. The Caper plant, a tropical shrub, thrives and produces fruit abundantly, a fact in itself evidence of a warm climate. It is of deciduous habit, and losing its leaves early in the autumn merely to regain them late in the spring, does not at all contribute to winter decoration. There is a Caper plant root, growing out of a terrace behind the Hôtel des Anglais, which is said to have been there at least three hundred years, as proved by authentic records. The Pepper-tree (Kinus mollis) is cultivated in gardens, on account of its foliage. It remains in leaf during the winter, and is a handsome tree with pendulous foliage and handsome red berries in clusters.

Succulent plants thrive wherever planted, and in some regions have become quite wild. The Mesembryanthemums are peculiarly luxuriant in their growth, and brilliant in their bloom. The absence of winter frost, the heat and dryness of summer, and the heavy rains of autumn and spring, seem quite to assimilate the climate to that of their native country, the hills and plains of the Cape of Good Hope. They are generally in flower by the end of April.

The Prickly-pear (*Opuntia vulgaris*), the commonest of the Cactaceæ in Europe, flourishes in this climate as well as in the rocky mountains of Mexico, its native country, as may be seen by the thriving specimens at the entrance of the town.

The Aloe is equally at home in the district, indeed

throughout the Riviera. But at Mentone it does not seem to be appreciated as at Nice, where many magnificent specimens are to be seen. Indeed, the Mentonians do not appear to value landscape gardening, or gardening of any kind. Very few flowers are cultivated, except for preparing perfumes, or in the gardens attached to the houses let to strangers. They seem to think it a loss of time to bestow labour or trouble on anything that is not destined to be consumed as food. This complete absence of that intense love of flowers and ornamental gardening which pervades all classes in more rigorous climates, characterizes Southern Europe—Italy, France, and Spain. Where do we see the Rose, the Clematis, the Jasmine, climbing over the peasant's cottage as in England? One reason is the difficulty of keeping plants alive and flourishing without watering, during the long summer droughts, and the difficulty and expense of finding water. But this does not apply to the Aloe or the Cactaceæ, which delight and thrive in the driest regions. And what can be more grandiose than the immense Aloes seen in the vicinity of Nice, vegetable giants, one of which is often as large as a small house! Is there not also great interest in watching the large flower-spike which, after the Aloe has lived a long life of dignified repose, shoots up in a few weeks, on a stem like a small Fir-tree, from fifteen to twenty feet high, utterly destroying, by its rapid, exhausting growth, the parent plant? Every winter many of these destructive children may be seen rising from their unfortunate parents, doomed to die with their offspring, among the Aloes at the Château of Nice. At Monaco there is a regular garden of young aloes on the terrace, but they are smaller, and of more recent growth.

The lily tribe, to which the spiny Aloe belongs—unlikely as it may seem to the non-botanical observer—has another

representative at Mentone which covers the terraces in February with white clusters of lovely flowers, and which we can also claim, a species of garlic, the Allium Neapolitanum. To the same natural order belongs the Asparagus, a species of which grows wild in this district, and is nearly allied to the wild Asparagus found in England.

The Oleander, or rose Laurel, as the French call it, with us a stove plant, grows in the open air to the size of a small tree. It may be seen both along the western and the eastern bays, along the sea-shore, and is also found truly wild in some of the valleys to the east. From the brilliant red hue of its flowers when in full blossom it has given the name of Campo Rosso to a small town in the valley of Dolce Acqua beyond Ventimiglia. It fringes the margin of all the rivers in Mount Atlas, thus forming a botanical link between Europe and Africa. It flowers in the summer and early autumn, and as neither its habit nor its evergreen foliage are remarkable, it does not attract much attention. The Tamarisk, with us a well-known sea-side shrub, also becomes a small tree with a good-sized trunk. As with us, it loses its foliage in winter, but regains it early in April. There is a row of these Tamarisk-trees skirting the beach in the western bay. They grow in the shingle that forms the beach, a few feet from the sea, thus illustrating, as in the north, their peculiar marine sympathies. Some plants, like some men, thrive anywhere, are cosmopolite, whilst others flourish only in their native soil, under special conditions, and without them pine and eventually die.

As illustrative of the cosmopolite plant may be mentioned the friend of our childhood, the common Blackberry, which we are glad to welcome even at Mentone. In the warmest, wildest, and rockiest regions it grows as vigorously, as joyously, as in any quiet lane in England

or Scotland. Only, in such situations it becomes an evergreen—in this sense, that it does not lose one set of leaves until it has got another. It is in truth, a singularly hardy plant, with a most peculiar power of adapting itself to circumstances. All climates seem to agree equally well with it—hot or cold, rainy or dry, maritime or inland, plain or mountain. I have never been to a spot in Europe or Africa where I have not found it, from Sutherlandshire to the south of Sicily, and to the margin of the desert of Sahara. I must confess to a certain degree of surprise when I saw this favourite of our shady English lanes growing at Mentone with wild and determined luxuriance, filling up the bed of dry torrents, climbing up trees to a height of twenty or thirty feet, and choking passages between lemon terraces on the mountain-side; and that in regions where it often does not rain in summer for six or eight months together, and under the glare of the fierce Mediterranean sun. Certainly it must have a mission to fulfil; and perhaps that mission is to supply a grateful fruit to the children of the very poor. The days when they go blackberrying are truly festive days to them, and but few are the fruits they can obtain in our climates. Its sight is always welcome, as is all that reminds the sojourner in foreign lands of his native country, and of the haunts and pleasures of his early days.

In early spring a very familiar plant shows its large, velvety, mealy leaves, in many places, on the road sides, at the bottom of walls—the Verbascum. At the same time appears in great abundance and luxuriance, in the same regions, a large, elegantly-variegated white and green Thistle. They both are in flower early in April, as also is the Antirrhinum, or Snapdragon, which is found wild on the warm terraces. It belongs to the same natural order as the Verbascum, that of the Scrophulariaceæ. This is

also the time when the elegant little grape Hyacinth, the star of Bethlehem, the Cistus or rock rose, the prickly Broom, the Cytisus, and many other beautiful flowers are in full bloom, and transform the ravines and terraces into regular gardens. I must not either forget to mention the orchids, of which many different kinds are found—the fly Orchis, the spider Orchis, the Orchis lutea, the long-bracted.

The vegetation of course varies according to the nature of the soil. Some of the lower hills are of sandstone, which impresses on the flora its peculiar character. The trees are Pines; the shrubs, the Arbutus, the Myrtle, the Juniper, prickly Broom, mountain Lavender, and Heath. At Christmas, our common ling Heath is in full flower. Another very beautiful Heath—the Mediterranean or arborea—flowers in February and March. It has an erect stem, rising to the height of five or six feet, and its spikes of numerous white flowers are most lovely.

The most remarkable of these sandstone hills is the one between the Cabroles and Gorbio valleys, called the Sta. Lucia and the Arbutus ridges. The vegetation I have enumerated is that of the Corsican granitic and sandstone mountains; it is that of the same formations in Mount Atlas, in Africa. Thus a couple of hours spent on these hills give a most graphic and true idea of the vegetation that covers some of the most lovely and romantic regions of the mountains of Corsica and of North Africa. It is a little corner of Africa encased in the Mentonian amphitheatre, and this identity of vegetations seems to prove that the day has been when the Maritime Alps, the Apennines, and Mount Atlas were one.

A species of evergreen creeping Smilax, or Sarsaparilla, with variegated triangular leaves and groups of red berries,

is very common. Our old friend the Ivy is constantly met with in the valleys and watercourses, wherever the soil contains lime. Ferns are very numerous throughout the district, and their growth is favoured by the peculiar structure of the terraces. The walls by which these terraces are bounded are formed by the simple superstructure of large stones, and the earth gradually filtrating into their interstices, forms a cool, damp bed, admirably adapted to their growth. All the old terraces are clothed with the Ceterach fern, the Asplenium trichomanes, and the Asplenium adiantum nigrum, which, with the Capillus veneris, or maiden-hair Fern, are the most common. The latter is a mere weed, and waves its beautiful fronds near every tank, every brook, every small irrigation canal—indeed, wherever there is either running or stagnant water. The Pteris aquilina, or brake Fern, is common, but it is a summer Fern as with us, its fronds only appearing in April, when the invalids are preparing to migrate northwards. The Scolopendrium, the Polypodium vulgare, the Ruta muraria, Asplenium Petrarchæ, and Fontanum, the Grammitis Leptophylla, and the Cheilanthes odorus, are less universally distributed, although by no means uncommon. On the whole, I found twelve different species of ferns, within a few hundred feet of the sea, most of which are also met with in England. In the high mountains there are other species to be gathered. I was rather surprised in the summer that followed my first winter at Mentone, to find the Asplenium trichomanes growing with equal luxuriance, not only on a wall in the Versailles gardens, but also on the ruins of an old chapel in a solitary islet at the northern extremity of wild and beautiful Loch Awe, in the far north, on the west coast of Scotland.

Nearly all the cultivated vegetation of the Mentone amphitheatre—Lemon, Olive, and Orange-trees—except

what is found on the narrow seaboard, grows on terraces, built, or excavated on the side of the mountain. These terraces have been produced by the labour of many ages. The mountains and hills rise too rapidly from the sea level for even Olive-trees to grow without this preliminary step being adopted to support and form the soil. A terrace is a ledge cut in the hill side. The stone taken out of the hill forms the outer wall, the dust, the broken stones, and a little earth brought from some other region, form the soil. These terraces are very expensive to make—as much so, I have been told, as houses; whereas the product is prospective only. The man who builds them sinks his capital more for his children's benefit than for his own. If he plants Lemon or Orange-trees, he must also dig a large tank, and be able to get water to fill the tank, in order to irrigate them in the rainless summer. If he plants Olive-trees, they grow so slowly, that even in twenty years the produce is insignificant. The stones, even, have to crumble into soil, under the influence of moisture, wind, and weather, and manure has to be added, before the terrace can produce the green crops which are generally planted on those occupied by young trees.

And yet the mountain-sides are scarred with these terraces, which rise in successive tiers, and are the foundation of the agricultural riches of the country. They are the evidence, in stone, of the thrift and industry of past generations—a silent but eloquent monument of the domestic virtues of the forefathers of the present race. Many new terraces have been built during the last few years, owing to the increasing prosperity of the inhabitants.

CHAPTER III.

GEOLOGY.

THE CRETACEOUS OR SECONDARY PERIOD—THE NUMMULITIC OR TROPICAL PERIOD—THE BOULDER DRIFT OR GLACIAL PERIOD —THE BONE CAVERNS—PRE-ADAMITE MAN.

AGRICULTURAL GEOLOGY.

"There rolls the deep where grew the tree,
O earth, what changes thou hast seen!
There where the long street roars, hath been
The stillness of the central sea.

"The hills are shadows, and they flow
From form to form, and nothing stands;
They melt like mist, the solid lands,
Like clouds they shape themselves, and go."

TENNYSON, *In Memoriam*, cxxii.

THE geological features of the country are very interesting, and much may be observed in a small compass. The high range of mountains which form the amphitheatre belong to the lower cretaceous rocks, and are composed of stratified limestone. The stratification is, in general, easily recognised, but it has been partly effaced in some localities by igneous action. At both the eastern and western extremities of the Mentone bay this formation juts out into the sea. At the eastern extremity, the road to Genoa is cut out of the side of the mountain, and ascends to a great elevation, crossing a deep ravine in the limestone by a bold bridge, the Pont St. Louis.

A short distance on each side of this point are observed some of the upper cretaceous strata which replace the chalk formation in Italy. According to my learned and

deeply regretted friend, the late Professor H. D. Rogers, of Glasgow University, who was an ornament to his native country, the United States of America, they form the following strata:—a group, consisting 1st, of blue shales, with intercalated thin layers of micaceous sandstone, sometimes abounding in the so-called green sand, eminently characteristic of the lower cretaceous strata; 2nd, of a coarse, usually very thick bedded sandstone, often conglomeritic, intercalated, in its upper part, with beds of shale like those of the group that underlies it.

Above these upper secondaries commences the tertiary system by a well-developed nummulitic limestone, full of nummulites, which in certain localities is overlaid by argillaceous strata, and these by a remarkably coarse conglomerate, both of the pleiocene age.

These strata are observed on both sides of the Pont St. Louis, in the same order, eastward towards the town of Ventimiglia, and westward to Roccabruna, at the base of the Turbia ascent. At both these points appear the pleiocene clays and conglomerate. Thus the lower hills, which occupy the ground-plan, as it were, of the Mentone amphitheatre, represent from east to west, different strata between the lower cretaceous limestone and the pleiocene conglomerate. These secondary strata are also reproduced in the same order, between the St. Louis rocks and Ventimiglia, near which the tertiary clays and conglomerate are found equally well developed.

The age and geological position of these pleiocene strata are indicated by the fossils they contain. My friend, Mr. Moggridge, who has devoted much time and thought to the geology of this district of the Maritime Alps, has found, near Ventimiglia, many fossils in the clays which underlie the conglomerate, characteristic of the later pleiocene period. The accompanying chart,

BORDIGHERA.

Names of the English	Physical Conditions and Events indicated by the several Formations.
CAINOZOIC OR TERTIARY.	
Pleiocene	geneous mixture of rounded, far-transported fragments, om the high Maritime Alps, betokens a period of very ener s crust in all this region.
Pleioc	a period of long repose in the sea, probably that which en volcanoes of Central France had become torpid.
No Meiocene	e of these formations along this part of the Mediterra *y land*, when the meiocene plain of Switzerland was all u
Middle Eocene (1540 ft. thick in England.)	d, massive, fossiliferous limestone shows, in its uniformity o f organic remains, and its almost total freedom from w , that it was the deposit of a very long and quiet period. I the cretaceous strata, as the upper eocene and meiocen a resubmerging of some wide tracts of the district beneath f prolonged quiet, in which the sea's bed abounded in anima
No Lower Eocene	his group shows that the cretaceous sea-bottom was nov dle eocene or nummulite sea covered it.
MESOZOIC OR UPPER SECONDARY.	
Upper (Equivalent of Chalk Marls of E	eous group, containing no hitherto discovered organic rem btful geologic age; but as it seems to overlie, with true p formity, the "cretaceous shales," we cannot go far astray l er cretaceous." Its pebbles denote an interruption to the ding periods, and thus it appears to foreshadow those prodig e earth's crust which attended the cessation of the Mes ng in of the Cainozoic with an almost wholly altered phy
Middle (Equivalent of Gault of England	ontain fossils, and the materials all indicate a long perio nction, when the bottom of the ancient cretaceous ocean nfted very fine clay and mica and sand, and the chemically r green granules.
Lower (Equivalent of Wealden beds of	g very full of minute marine animal fossils, and being, moreo ed, were evidently formed at the bottom of a deep sea duri repose of the underlying earth's crust.

which Professor Rogers kindly drew up for this work, will show at a glance the above details.

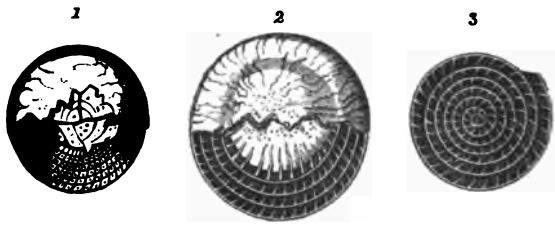
The conglomerate is magnificently developed both at the entrance to the Mentonian amphitheatre, on the Nice road, near the village of Roccabruna, and seven miles further on, at Ventimiglia. It is, indeed, one of the most interesting features in the geology of the district. The deposit is composed of large stones, rounded by water and friction, imbedded in calcareous gravel, constituting what has been termed pudding-stone, and is very extensive; it indicates a period of great convulsion, a period when the waters of the Mediterranean were probably thrown with terrific violence on the mountain masses which form the Maritime Alps in the far off background. Porphyry, and granite stones of large volume, are common in this conglomerate, and these formations are only met with at a considerable distance from the Mediterranean coast.

The village of Roccabruna is built on the conglomerate, which ascends much higher on the sides of the mountain along the Nice road. Tradition says, that Roccabruna was once some two hundred feet higher up the mountain side, but that a gigantic land-slip occurred, and that the bed of boulders on which it was built descended bodily to its present position. I much doubt, however, the veracity of this the popular view as to the original habitat of the "brown rock" village.

The various geological formations observed in the limited Mentonian amphitheatre bring home to us, "in words of stone," some of the most interesting phases through which the world has passed during recent geological periods. The word recent, however, must be understood to apply to periods separated from us by countless ages, and only recent as compared with the

unfathomable periods of time during which the primary and secondary strata were formed.

The lower cretaceous limestone rocks, which form the basis of the Mentonian amphitheatre, and the strata therein found that correspond to our chalk or upper cretaceous era, represent the highest or most recent formations of the secondary period of geology. The nummulitic limestone which crowns the St. Louis rocks, and which is being quarried for building purposes where the first descending eastern bend occurs, belongs to the eocene or tertiary formation.



NUMMULITES.

1, 2, Nummulites lævigata; 3, Section of do., showing its cells.

The nummulitic formation is not the earliest of the eocene period, but occupies a middle position. At Mentone the first or lowest eocene formation is not represented; nor are the upper strata of the eocene system, nor any of the miocene. They are all wanting up to the pleiocene clays which underlie the conglomerate. At least such is Professor Rogers' view of the geology of this district, the result of careful analysis and of many excursions of inquiry in which I had the pleasure of his refined and intellectual companionship, and the opinion of so able a geologist must have great weight. He considers, as we have seen, the shales and sandstones, which lie east and west of the St. Louis limestone lower cretaceous rocks, to be

members of the upper cretaceous family, and not tertiaries, as is generally supposed.

There is a feature of great interest connected with the nummulitic limestone. It belongs, most indubitably, to the middle eocene, it was unquestionably formed under salt water,—for the nummulites or coin-like shells which it contains are the shells of salt water testaceæ—and yet this formation is found highly developed on the highest and most central portions of the Alps, the Carpathians, the Pyrenees, and the Himalayas. This fact alone would suffice to prove that these stupendous mountain chains are of comparatively recent formation. They could not have existed at the time the nummulitic limestone was forming under the sea, at a time when England was already peopled by various quadrupeds, and must have been raised above the sea level subsequently to that period, by some mighty convulsion of nature.

During the period of the earth's history when the nummulitic limestone was formed, and during the subsequent or miocene period, the climate of Europe was warm or subtropical. The vegetation was all but that of the tropics of the present day, as testified by the beds of lignite or wood coal belonging to this period, which are found in these strata. The animals of the tertiary period were the large and curious precursors of the present races. An idea of these animals may be gained by the specimens that have been so curiously reproduced in the gardens of the Crystal Palace. They were remarkable for their size and development, which indicated favourable conditions of material life, abundance of food, and a genial climate.

The sea and rivers were also peopled by exuberant and grandiose life, indicative of tropical warmth—large Sharks, and Rays, Turtles, Dolphins, and such like. The nummulites, or coin-like shells, found in the St. Louis quarry,

were living in boundless profusion in the warm seas. So abundant were they in the oceans of those days that thousands of miles of nummulitic limestone several hundred feet in depth, all but entirely composed of their remains, are found in some regions of the Old World.

Then, after the pleiocene period a dark cloud came over the earth. From some unknown cause its temperature lowered, and the glacial period set in. Part of Europe and Asia subsided under the sea as the climate became cold. Glaciers established themselves on the mountains of a considerable portion of what remained of the Europe of to-day, and on other regions now submerged, down to the 36th parallel of latitude (Agassiz). The tropical vegetation gave way to a northern flora. The tropical animals died out or emigrated to more southern regions, and were superseded by new forms of life more adapted to a boreal climate.

The material world went on as before, under the influence of the same laws. The rain, the frost, the air disintegrated the rocks, the detritus of which was carried by rivulets and rivers to the sea. These fragments, large and small, were rounded and polished both by the action of the waters that brought them from the heights, and by the action of the seas to which they were carried; as is the case with the shingle on modern shores. Huge portions of the glaciers, that reached the sea in many places, were broken off during the short summer. Covered with rocks, stones, and sand, which they brought from the mountains, in the ravines of which they were formed, they sailed out to sea. Tens of thousands of icebergs now sail every summer in the same way, into the Atlantic from the North Pole. On melting, their cargo of gravel—for of such is gravel—of boulders, and of large rocks, is, now as formerly, deposited at the bottom of the ocean.

After an incalculable period of time a change again came over our globe. The warmth of the sun again reached us, and the submerged portions of Europe, Asia, and North America, again began to rise; as also, no doubt, did regions which for the first time appeared above the waters. This rise appears to have been gradual, as well as the improvement in climate which accompanied it. Thus by slow degrees the present state of the earth was attained.

Is the conglomerate at Roccabruna and Ventimiglia a true boulder drift; is it evidence of the glacial period having existed on this coast? Was it formed under water during the glacial epoch, when, no doubt, the mountains in the background were one mass of glaciers descending to the sea; when the polar bear roamed on these shores, and polar fish and shells inhabited these seas?

I have long thought so, as stated in the previous editions of this work, and think so still. The pleistocene, glacial, or boulder drift period, succeeded immediately to the pleiocene, to which belong the underlying clays. The glacial influence extended below the forty-second degree of latitude, according to the best authorities. The Alps are just behind the coast-line, and at Ventimiglia itself there opens out a wide "glacial-like" valley, that of the Roya, which reaches to the foot of the Tenda, a mountain seven thousand feet in height, one of the higher of the chain of the Maritime Alps. During the glacial period the entire region now occupied by the Maritime Alps must have been one mass of glaciers, with prolongations down to the sea wherever valleys existed in that direction.

This valley of the Roya, which opens out just beyond where the conglomerate is found, has all the characteristics of a glacier-excavated valley, according to the most recent writers on the subject (Hooker, Lyell, Ansted). It is

gives a most abundant precipitate, even when taken from springs in the sandstone rocks. I have had to meet this difficulty by giving distilled water, or rain water, or mild mineral waters, to some invalids. In others the hardness of the water is evidently beneficial, as, for instance, in cases of chronic diarrhœa.

In the unstratified limestone rocks at the Pont St. Louis are many crevices and caverns, similar to those which so frequently occur in the harder limestone rocks in general. These fissures and caverns owe their existence to various causes. Formed under water, and during their upheaval and drying subjected to pressure and heat, the limestone rocks have a tendency to split and to contract, and thus to form crevices and cavities. The presence of these fissures and caverns is often the evident result of the dissolving action of water on the soluble limestone rock, and of the infiltrations of subterranean springs or of rivers in days gone by. The formation of these caverns on a larger scale is illustrated in the limestone formations of Derbyshire, Carinthia, and Kentucky. The Mammoth Cave of Kentucky, the caverns of Adelsberg, in Carinthia, and the Devil's Cave, in Derbyshire, are cited amongst the wonders of the world.

On the shore, at the eastern extremity of the inner bay, in the "red rocks," as they are called, are several good-sized caves, which contain in great abundance organic remains—the bones of large and small mammifers—imbedded in hard sand and calcareous matter. The organic remains thus imbedded cover the floor to a depth of many feet, and are mixed with the flint weapons and utensils and knives, which have excited so much attention during the last few years; testifying as they do to the existence of races of savage men in far back pre-Adamite times.

THE BONE CAVES.

The existence of flint weapons among the bones found in the Mentone caverns was first noticed, I believe, in 1858, by M. Forel, a Swiss geologist. He published, in 1860, a memoir,* in which he gives the result of his researches. M. Forel's investigations were principally made in the third and fourth caves, counting from Mentone. He found a great quantity of broken bones, shells, remains of crustacea, and pieces of charcoal. Along with these he discovered many fragments, splinters of flint, and also many arrow and lance heads, spear points, and triangular pieces of flint, evidently intended for knives. The bones belonged to stags, sheep, boars, horses, wolves, dogs, cats, rabbits, a large carnivorous animal, and one to the Bos primigenius, a large bull which belongs to the glacial period.

During the winter of 1862, Mr. Moggridge continued these researches, with great care, in the second cavern, and among great masses of bones also found the flint instruments above enumerated, some of them in a perfect state. Pieces of charcoal were likewise found mixed with them.

The existence of these Bone caves at Mentone, along with the geological features of the district, draws attention to one of the most interesting and difficult geological questions of the day. These flint instruments were evidently made by men, and by men to whom the first dawn of human civilization was unknown, who were living as savages now live in Australia. They knew how to make fires, as the pieces of charcoal show. They lived evidently in the caves, and destroyed the animals, the bones of which form the floor, by means of the flint weapons, feeding on their flesh. The question is, when did they live?

These Bone caves have been found all over the world;

* "Notice sur les Instruments en Silex et les Ossements trouvés dans les Cavernes à Menton." Moyes. 1860.

and latterly, in many, as at Mentone, the bones of animals have been found mixed with flint instruments. That the latter have been made by the hand of man appears rationally undeniable, and the first conclusion was that these savage men must have lived in the early historic periods; for the Celts and early Gauls used flint and stone weapons and utensils.

A minute investigation of the facts, however, soon proved that such could not be the case. Firstly, these cave flint utensils are quite different to those used by the Celts and the early tribes of the Old and New World. Secondly, they have been found in some of the caves mixed up with the bones of animals existing long before the present era, in geological epochs before, during, and after the glacial period.

Thus, in a cavern at Kirkdale, in Yorkshire, have been found the teeth of two or three hundred hyenas. In this, and in that of Brixham, in Devonshire, and in other similar caverns, have been also found in abundance the remains of other races either totally extinct, or extinct in these climates, such as the Tiger, the Bear, the Mammoth, the Tichorrhine Rhinoceros, the Hippopotamus, and the Irish Elk. These are races that existed in the warm pleiocene epoch—when the climate of Europe was subtropical; before the subsidence of continents and the formation of the glaciers that gave rise to the boulder and gravel drift above described.

These races appear to have been gradually or suddenly destroyed, or driven south by the glacial change. I say suddenly, for in some parts of the world the change seems to have been very abrupt. A Mammoth, in the flesh, was dug out of the frozen shores of the Lena, in the north of Asia, some few years ago. Its actual flesh was eaten by dogs, after having been thus preserved probably for tens

of thousands of years, and the skeleton and hair adorn the Museum of St. Petersburg. The skeletons of Irish Elks have been found in the same regions, buried in the frozen soil, erect, with their head thrown back, as if they had been suddenly overpowered, suffocated by a snow-storm, and overwhelmed with mud and drift. The skeletons of Mammoths are found in such quantities, preserved in the frozen soil of the north of Asia, that for centuries there has been a brisk trade in the ivory of which their tusks are formed.

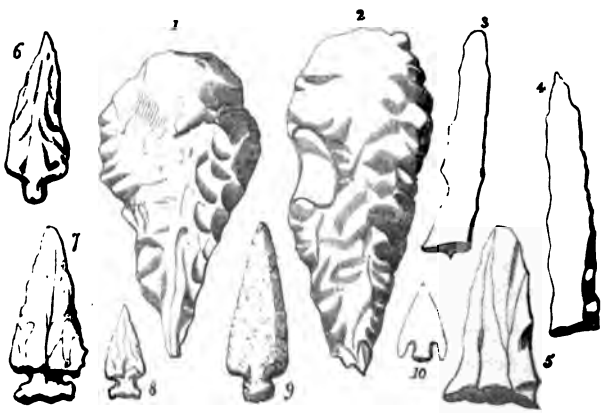
If the silex weapons and utensils had only been found along with the bones of extinct animals in caves, doubts might have been raised as to their showing the trace of early races of men who lived when those animals lived, chased and destroyed them. They might have been left in those caves by men who inhabited them at a later period. But there is other evidence.

They have been found together in the open, in beds of gravel and drift, the geological antiquity and date of which are denied by no geologist. Indeed, it is in such a bed at Amiens that the bones of extinct animals and flint weapons—the trace of man—were first discovered, by M. Boucher de Perthès, in the year 1840. His first statements were met with indifference, if not disbelief; but the most thorough and conscientious examination of the facts he announced, on the part of all the leading geologists of the day, both English and continental, has latterly led to their acceptance and confirmation.

If men in a savage state existed before and during the glacial period, along with races of animals long extinct, and if these were the men who made the various flint weapons and utensils found in the Mentone caves, the presumption is that the traces of habitation which these caves present belong to this far distant period of the

earth's history. The St. Louis limestone rocks, in which the caves exist, long covered by the sea, were probably raised from its bosom in time to witness all the changes that preceded and followed the glacial period, and the caves themselves may have been inhabited before the conglomerate or boulder drift of Roccabruna was formed.

In order to still further clear up the geological history of the Mentone cave deposits, a museum has been formed



PRE-ADAMITE FLINT INSTRUMENTS.

1, 2, from Valley of Somme; 3, 4, 5, England; 6, 7, 8, Canada; 9, 10, Scandinavia.

in the town-hall of Mentone, where the bones and flint utensils found in them by geological amateurs are to be collected for future investigation, along with all other specimens pertaining to the natural history of the district. Were such precaution not adopted, these treasures would soon be rifled and thrown away by amateur enthusiasts, zealous in delving and digging, but not sufficiently learned in the knowledge of fossils to interpret what they find.

Future inquirers, in their research for flint weapons and

utensils, will find the accompanying woodcut valuable. It is reproduced from Mr. Page's work, already quoted.

Having said so much on the presumed pre-Adamite race of men, I must not leave the subject, new, perhaps, to many, without remarking, that these investigations have been accepted by many of the most eminent geological divines. It is felt, humbly, that what is true cannot be contrary to Scripture, although we may not be able *now* to see the link, the concordance, and that geology may continue its researches into the past history of the earth, and even of the human race, without fear or scruple. The concordance will most assuredly come. I would also add, that up to the present time there has been no discovery of human bones under such circumstances as to prevent doubt or cavil, although several presumed discoveries have been brought forward. This is, at present, one of the difficulties of the question. Scientific men, however, are on the look-out, and expect from day to day to discover them. We may, therefore, join in the search at Mentone, and perhaps find the solution to this mystery, so anxiously desired.

There is an amusing tradition among the inhabitants of Mentone, that many years ago a "mad Frenchman," who passed several winters at Mentone for the health of his wife, whom he eventually lost, spent his whole time in excavating these caverns. Some, indeed, go so far as to impute their entire formation to his insane efforts. No doubt the French stranger was merely an enthusiastic geologist, who had discovered the "bone drift," and worked at it with due energy. The traces of his labours, and of those of others, are still found at the entrance of the larger cave. No clear idea of the natural sciences has penetrated as yet among the peasantry at Mentone. When botanizing, I have been often good-humouredly

asked if I was looking for a salad, and told that the herbs I had collected were not fit to eat, whereas such and such others were very good.

AGRICULTURAL GEOLOGY.

As we have seen, several of the lower or secondary hills enclosed in the amphitheatre are formed of a loose sandstone. With this exception the soil may be said to be principally of limestone formation, with here and there aluminous clays. The agricultural geology of the district is consequently exceedingly interesting, offering much to observe in a very limited area.

The clay strata, in their natural unworked state, appear, as elsewhere in Italy, very sterile. The sides of the deep ravines worn in them by mountain torrents present very little natural vegetation; as may be seen in the upper part of the Gorbio valley, and to the east of the mountain village of Castellare. Where, however, the fall is not precipitous, and especially where terraces have been formed, and the soil has been worked and manured, the clay strata appear to become very productive. This is easily explained, as clays contain the potash, lime, and other salts necessary for vegetation, and everywhere merely require cultivation and irrigation to become fertile.

The sandstone hills are more naturally fertile than the clays, to their own peculiar vegetation—Conifers, Heaths, and Brooms—but do not offer the same resources to cultivation. The soil being principally silicious, and containing in very small proportion the salts and mineral constituents required for cereals and the vegetation of good land, it does not appear to become so easily fertile under cultivation. Still, with the help of terraces, irrigation, and manuring, it seems to respond to the wants of the evergreen olive, lemon, and orange-trees.

The green sand, where it appears, gives, as usual, a most productive soil, as for instance high up in the Cabroles valley, north of Sta. Agnese.

The hard stratified limestone which constitutes the Mentonian basin, and of which the higher range of hills is mainly, if not entirely composed, by its decomposition forms a very fertile soil. Indeed, the gradual disintegration of this hard marble-like rock admirably illustrates the formation of soils in the early period of the earth's creation. Like limestones in general it contains, locked up in its all but adamantine structure, most of the mineral elements necessary for vegetation, including iron. The presence of iron is at once apparent from the red hue of the more perpendicular rocks. When a fracture occurs, the fracture is at first white, but from exposure to the air the iron passes to the state of the red peroxide, in which state it is well known, if not too abundant, to greatly increase the fertility of soils. Hence the red hue of the rocks which bound the inner bay near the Pont St. Louis, and of the soil generally, formed by the detritus of these rocks.

At the foot and on the sides of the limestone rocks are vast masses of stones and detritus that have fallen from the cliffs adjoining, broken off by the combined action of moisture, sun, and wind. These gradually crumble where they lie, yielding up their mineral constituents, and forming a suitable nidus for seeds sown either by the hand of Nature or by that of man. If the lemon or olive is planted in such soil, it grows at once vigorously and healthily. If vegetables and cereals are sown, they appear to be equally at home. The numerous terraces recently constructed on the side of the mountain, and at the foot of the cliffs near the St. Louis ravine, and the self-sown plants growing naturally in the same region, illustrate these facts. Thus, no doubt, was the soil of the habitable

globe formed when its mountains first reared their heads above the waves.

From what precedes, it will be at once understood that the vegetation of the Mentonian amphitheatre, except that of the sand hills, is what may be termed a lime vegetation. In other words, the plants that thrive the best are principally those that flourish in a calcareous soil, in districts in which lime is a component part of the soil.

Thus Ivy grows freely in the ravines, and on the walls, where there is moisture. The Pellitory, essentially a lime plant, grows out of every wall and terrace. The Wall-flower, the Virginian Stock, and the Pink and Carnation grow and bloom most luxuriantly in the gardens, with little or no cultivation. They form large bushes in the winter, and are one huge mass of luxuriant blossom very early in spring. There is a small wild Pink, a native, which grows out of crevices in the driest and most sun-burnt rocks. The Odoaster rubrum, or red Valerian, grows wild everywhere, throwing out thick succulent stems and large spikes of flower from mere crevices in the dry sun-burnt rock.

To these may be added, as examples of lime-plants, the Arum Arisarum, the Fumitory, the Cneorum tricoccun, and the Crassulaceæ or Stonecrops. The Fumitory is the commonest wild plant. It grows and flowers everywhere on the terraces throughout the winter. The Arum Arisarum is equally prolific and universal. Its dull purple flower covers the olive terraces, and attracts immediate attention after the autumn rains. I am told that the root is good food for pigs, but it is deep below the surface, consequently of rather difficult extraction, and appears not to be thought worth digging up. Moreover, pigs do not seem to be much esteemed, or their society cultivated in the Mentonian district.

The Cneorum tricoccun is a rather elegant, small-sized, bushy plant, with small dark-green leaves, small yellow flowers, and trilobed seed, which is only found in the wildest, rockiest, and driest regions; in such localities, for instance, as the rocks above the St. Louis Bridge, where it grows freely. It belongs to the Terebinthaceæ, chiefly a tropical order, and is in flower all winter; although usually three petalled and three seeded, it is occasionally four petalled and four seeded. Along with it, because found in the same localities, must be named a very lovely shrubby malvaceous plant, the Lavatera, with delicate pinky-white "mallow" flowers. It blossoms very freely all winter in the above localities, and always attracts the attention of the stranger who leaves the shore and the terraces to climb the rocky heights.

The Stonecrops are very abundant on the walls, in the warmest and driest regions, generally growing out of their interstices. They flower in April.

Nor must I forget to mention, as adorning these rocky regions, the wild Thyme, which grows freely and abundantly, flowering all winter. We can thus, throughout the winter, in December and January, murmur *sotto voce*,—

"I know a *rock* whereon the wild thyme grows."

Another aromatic labiate, found abundantly, is Mint; but its habitat is different. It must be looked for in lanes and damp ravines, in moist localities.

The soil suits the Vine, which flourishes in all such mountain regions with a southern exposure, on the Mediterranean shores. It is principally cultivated on terraces, at from 500 to 2000 feet above the sea level, and formerly very good wine was made in the district, some of which may still be had. For many years, however, the oïdium reigned with the same savage intensity as at Ma-

deira, and no wine whatever was produced. No doubt the evil might have been remedied by procuring sound cuttings from the neighbourhood of Aix, where the disease has never appeared, and by sulphuring assiduously. But the Mentonians had not hitherto sufficient energy or enterprise to adopt this course. The peasantry succumbed to what they thought the will of God, considering it, I am told, impious to strive against the disease. To me their inaction was more the result of that apathy and disinclination to adopt new-fangled ways that has ever characterized the agricultural mind, in all countries. Latterly vines have been planted, and before long we may hope to see good wine again produced at Mentone. The presence of strangers has created a ready market, and no doubt an effort will be made to supply their wants.

During the winter the Vines are without leaves, and, being like old sticks, old ropes, when trailed, Italian fashion, from tree to tree, add nothing to the beauty of the scene. The Peach and Almond-trees are equally devoid of foliage, and therefore shine by their absence. The latter blossom in February, and then become ornamental. They are more numerous in the vicinity of the higher mountain villages than near the shore.

Fruit-trees of all kinds seem to find the sea-level too warm, and are principally cultivated at a much greater elevation, such as the vicinity of the Turbia, or of Sta. Agnese, above 2000 feet high. Here Vines, Apple, Pear, Cherry, Peach, and Almond-trees abound, covering the terraces, and taking the place of the Olive-tree. The winter frosts are severe at this elevation, for I have repeatedly seen ice an inch thick. This degree of winter cold seems, indeed, to suit their constitution better than the mild winter climate of the seashore region.

CHAPTER IV.

PHYSICAL GEOGRAPHY AND METEOROLOGY OF THE RIVIERA AND MENTONE.

The characteristics of the Mentone winter climate are: "Absence of frost, prevalence of northerly winds, moderate dryness of the atmosphere, complete absence of fog, paucity of rainy days, clearness and blueness of sky, general heat and brilliancy of sun, cool night temperature, and a bracing coolness of the atmosphere generally."—(p. 81.)

CAREFUL observation, during ten winters, of the meteorological conditions which reign on the Genoese Riviera, and at Mentone, has gradually enlarged my experience, and led me to form a clear idea of their nature and of their influence over the climate.

As we have seen, the Mentonian district, which has been the principal seat of my observation and study, is a small amphitheatre, situated on the coast-line or undercliff of the mountains of southern Europe, as they reach the Mediterranean. To the north-east, north, and north-west, are the highest mountain chains of Europe, extending hundreds of miles (see Map of Italy and the Alps, p. 1). Further still to the north-east lies the table-land of Europe, which reaches to the arctic regions. As a necessary result of this geographical position, the northern winds, especially the north and north-east, must be very dry winds. Firstly, they have been dried by travelling over a great continent. Secondly, they have had nearly all the remaining moisture wrung out of them by the extreme cold of the high regions which they have to pass over when crossing the Alpine chains, before they reach the Mediterranean.

The physical evidences of the extreme dryness of the atmosphere, when northerly winds reign, are manifold. Firstly, with a north and north-east wind, there is generally a difference of from nine to twelve degrees Fah. between the wet and dry-bulb thermometers. With the north-west, which crosses lower mountain chains, and may come from the North Atlantic, the difference is generally from five to eight or nine degrees. Secondly, the atmosphere is generally clear, the sky blue, the sun shines warmly, the nights are, comparatively, cold, and the summits of mountains, above four thousand feet high, are generally free from clouds.

These phenomena are easily explained on meteorological grounds. The presence of moisture in the air, either as imperceptible vapour or as cloud, gives a white appearance to the sky, and veils the earth from the sun's rays. It thus becomes a kind of shield, a protection from the warmth of the sun. When moisture scarcely exists, and the air is dry, as it is in the Mediterranean with a north wind, in Egypt, in the desert of Sahara with south winds, indeed in all dry regions, the sky is always blue, the sun shines with great power, and at night, owing to rapid radiation of the earth's heat into space, the air becomes, comparatively, cold. Such is the climate of the north Mediterranean coast with northerly winds. The sky is clear and blue, the sun shines like a globe of fire, which it really is, and its rays reach the earth with great power. The nights are then clear, the stars shine with a brightness unknown in the north, and the temperature of the air is cold, compared with what it is in the daytime.

The English climate is partly explained by the above facts. The atmosphere above the British Isles is always loaded with aqueous vapour, which gives to the sky its usual whitish colour. The aqueous vapour of the atmo-

sphere shields the earth from the action of the sun's rays during day, and prevents radiation during night. Hence the coolness of our summer, as compared with that of the same Continental latitudes, where this aqueous shield is wanting. In winter, when the sun is low on the horizon and its rays are feeble, the cloud atmosphere, by preventing radiation, keeps in the heat previously acquired, and contributes, with the Gulf stream, to render the British winter milder than that of the drier Continental regions in the same parallel of latitude.

The influence of these meteorological conditions on climate has been well explained, of late, by Professor Tyndall in his lectures on heat. It is also beautifully illustrated by the meteorological observations of Mr. Glaisher, during his aeronautic ascensions. Once above the aqueous vapour and the clouds, which extend several thousand feet high in our climate, a dry atmospheric region is reached, where the sky appears intensely blue. The sun's rays here have so much power that they scorch and blister the face and hands, although the thermometer may be much below the freezing point.

The Mediterranean climate, when the north winds blow, is like this upper region of our own atmosphere. The air, containing but little moisture when these north winds reign, as they do during the greater part of the winter, the sky is blue, and the sun shines through it fiercely, even in mid-winter. It thus warms all the objects with which it comes in contact, and which are sheltered from the wind, that is, the entire undercliff.

The north-west wind, called the mistral in this part of the Mediterranean, usually blows from the south of France as a cold, dry, cutting wind, which is much dreaded. One of the great climate advantages of Mentone is its complete protection from this wind by the Turbia mountain, which

separates it from Nice. When the mistral blows, the sky remains blue, and the sun shines warmly. Sometimes, however, the north-west wind blows no longer as a local wind, originating in the south of France, but as a grand north-west European wind, coming from the North seas and North-west Atlantic. Then it brings black clouds loaded with rain, which may fall in the district, or out at sea, and the wet-bulb thermometer rises.

When rain does fall, with a north-west wind, there is generally a grand oceanic and European north-westerly storm; but such rain is rare. It is still more so with the strictly Continental winds, or the north-north-east, and east winds. Indeed, when rain falls at Mentone with any such winds, it is generally at the end of a European gale from these regions, of which the newspapers bring us the details a few days later. Such rain becomes snow on the higher elevations of the mountains that surround and enclose the district.

Even with a direct south-east wind, snow may fall, exceptionally, at Mentone, inside the amphitheatre, owing to its being open to the south-east in a line with the high mountains of Corsica, which lie direct south-east, and are then covered with snow. Snow, with a south-easterly wind, generally falls in the latter part of the winter, in March for instance, when immense masses of snow have accumulated on the Corsican mountains. Before this accumulation has taken place, in early winter, the south-east wind is a warm wind, the sirocco.

Thus, during winter there is very little rain from the northern quarters; and as, during the winter months, from November to May, the wind is generally from these quarters, the dry, clear, sunny, but cool winter climate of Mentone is explained. The exceptional winter warmth, for the latitude, depends on mountain

protection, and on other causes, which will be presently examined.

When rain falls, with the wind in the northern quarters, it is generally gentle, moderate in quantity, and does not present the tropical character.

When the northerly winds bring clouds and scud over the mountains, and the atmosphere in the Mentonian amphitheatre, and out at sea, is warm, these clouds often melt gradually, and disappear. It is a very interesting sight to see thick banks of clouds thus rising over the summits of the higher mountains in the background, expanding on the sky above, and then melting away as they advance southwards, into warmer atmospheric strata. After a time, however, if the wind which impels them is powerful, they cool the air, accumulate, and the entire sky becomes overcast.

With south-westerly and south-easterly winds, the fall of rain at Mentone, and on the Riviera in general, is often very great in a limited space of time—indeed, quite tropical. This is also sometimes the case when northerly winds meet southerly currents on or near the coast line, and condense their moisture. The rainfall may amount to five or six inches in the twenty-four hours.

Whenever this occurs, the watercourses are filled, from bank to bank, with enormous volumes of water, which carry down great masses of stone like straws from the mountains, and excavate wide beds as they approach the shore line. These watercourses are, at other times, as in central and southern Italy, mere rivers of stones, with a thin stream of water trickling through the middle. On one night, Dec. 1859, four and a half inches fell in ten hours. The greatest amount of rain that was known to have fallen in twenty-four hours at Greenwich, in five years, was 2·63 inches (Drew).

The smallest rills become impetuous torrents when the rain falls with this tropical violence. As they rush madly to the sea, their yellow waters, like those of the "flavus Tiber" of the old Latin poets, carry down vast quantities of stones and earth, washed from the mountain sides, and discolour the waves for some distance from the shore. The descent of these earth and stone-laden waters into the sea illustrates, on a small scale, the way in which the deltas at the mouth of large rivers, such as the Nile, the Ganges, the Mississippi, have been and are being created. It also illustrates the mode of formation in past geological eras of the Neptunian or sedimentary strata. The earth contained in solution and thrown into the sea, gradually subsides and sinks to the bottom, there forming horizontal layers, the composition and nature of which depend on the kind of soil carried away from the land by the river or torrent. As these deposits take place, numerous animated beings, especially those that cannot get away very fast from the mud-shower, such as crustacea, become entombed, to constitute the fossils of future ages.

These heavy rains, as we have seen, are all but confined to the southerly winds, or to their collision with northerly winds, on the shore mountains, or near the shore. Coming from the warm south, the southerly winds are warm, and, in passing over the Mediterranean, absorb large quantities of moisture. On arriving at the mountain-girt coast of the Riviera, they are arrested by cold currents from the north, or have to ascend the sides of the mountain ranges. In either case, in winter, they come in contact with cooler atmospheric strata, and are obliged to part with their moisture, which forms dense clouds and is rapidly precipitated in the shape of heavy rain.

The total rain-fall during my first winter's residence at Mentone, 1859-60, was 23·68 in., from October 9th to

April 21st; viz., October, 8·02 in.; November, 2·21 in.; December, 6·96 in.; January, 3·24 in.; February, ·18 in.; March, 1·26 in.; April, 1·81 in. These data were given me by a friend, Mr. Smith, of Rome, who kept an accurate register. According to my own observations, it rained in that winter, in November five days, in December five, in January four, in February one, in March six, and in April, up to the 23rd, eight days; in all, twenty-nine days, from November 3rd until April 23rd. In October it rained nearly every day.

It very often rains on the mountains, or a few miles out at sea, when it is quite clear and fine on and near the sea-shore. In the former case, the wind is generally a southern wind, and, as it ascends the mountain, it evidently meets with colder strata of air, which precipitate its moisture, forming rain clouds. I have repeatedly sat on the mountain-side and watched a current of warm air rise from the sea, at a distance, form at first a vapour on the shore, and then a white cloud, gradually ascending the mountain. It is singular to see the small cloud thus spring, as it were, from the waves near the coast-line, gradually expanding and enlarging as it creeps up the mountain-side. I was, indeed, forcibly reminded of the fisherman in the Arabian tale, who opens a casket on the sea-shore, from which the geni issues in the form of a thin vapour, which rapidly becomes a cloud, covering the horizon.

A more reverent and more striking illustration of this phenomenon is to be found in the History of the prophet Elijah, in sacred writ (1 Kings, chap. xviii.), "And he said to his servant, Go up now, look towards the sea .... and it came to pass at the seventh time, that he said, Behold, there ariseth a little cloud out of the sea, like a man's hand. And he said, Go up, say unto Ahab, Prepare thy chariot, and get thee down, that the rain stop thee not.

And it came to pass in the meanwhile, that the heaven was black with clouds and wind, and there was a great rain."

The rain, in these instances is often confined to the upper mountains, and increases the volume of torrents and rivulets, although it may remain quite fine at and around Mentone, as also on the sea horizon.

When, on the contrary, it rains a few miles out at sea, whilst there is fine dry weather at Mentone, the wind generally comes from the contrary direction, from the north. The cold north wind, passing overhead, impinges upon the sea some distance from the shore, meeting warmer atmospheric strata. Dark banks of clouds thus form on the horizon and rain falls several miles from the coast. In either case the coast ledge may, and often does, enjoy a happy immunity.

The average fall of rain at Nice is 25 inches. I presume that the annual fall at Mentone is greater, from its being surrounded by mountains on all sides but the south, the south-east, and south-west. According to Roubaudi, the author of a valuable work on the climate of Nice, the average number of rainy days at Nice is sixty. M. de Brea, a native and resident of Mentone, and a gentleman of high scientific attainments, has published a meteorological table, founded on ten years' observation, from 1851 to 1861. According to his experience, the average number of days or nights during which it rained little or much at Mentone is 80, or 20 more than at Nice. We may presume, therefore, that the fall of rain is greater, although the consequence is not necessary. At Greenwich, the average rainfall is only 25 inches, yet the number of rainy days is 155. At Torquay, the average number of rainy days is also 155. At Pau, the average rainfall is 43 inches; rainy days, 119. At Malaga, the number of rainy days is only 40 (Francis). At Madeira, the rainfall is

variable; the average about. 30 inches, the rainy days 88 (Dr. White).

The amount of rain that falls does not so much characterize the climate of a locality as the manner in which it falls. At Mentone, as at Nice, and along the entire Riviera, thoroughly cloudy days, and days of incessant rain, are rare. They do, however, occur occasionally in the winter, and principally with continued southerly winds. The sky is then quite obscured, so that the sun is not seen, as in the north, and rain may fall for several days and nights. But this does not usually take place more than two or three times in the course of the winter. Many inches of rain fall on these occasions, thoroughly soaking the ground. After two or three days, the clouds disperse, the sun peers forth, and again careers through a clear blue sky, like a blazing fire. In a few hours the ground becomes dry, and many days of uninterrupted sunshine generally follow, during which out-door life goes on as during a fine rainless September with us.

There are two rainy seasons on the Riviera. One, the autumnal equinox, at the latter end of September, and during October; the other, the vernal equinox, in March, ending with the first week of April. The autumnal rainy season is rather irregular in its periodicity. It usually occurs under the influence of south-westerly gales, and extends, more or less, into November. The rains do not last, in most winters, more than three or four weeks, and that not continuously. The rest of the winter, until the spring, is generally dry and fine, under the influence of the northerly winds, with the exception of a few occasional days of rain, when the wind turns to southern quarters. Heavy rain again falls in the latter half of March, with south-westerly or south-easterly gales and storms, as in northern Europe. These rains saturate the earth and

renew the springs. Under their fostering influence, and with the help of the ardent sun, which shines through the clear dry atmosphere, vegetation then advances with surprising rapidity.

As in England, and in most other regions, the seasons, and more especially the winter, vary in different years, so that it is difficult to form a correct opinion from the experience of any one year. There are winters during which south-westerly winds prevail, often clouding the sky and bringing rain, at intervals, throughout the winter. Such were the winters of 1864-65 and of 1868-69.

During the summer but little or no rain falls. In some years the drought lasts, without cessation, for six or seven months, from April or May to October or November. Thence the absolute necessity of tanks for the irrigation of the lemon and orange-trees, which, as we have stated, cannot thrive and bear fruit without irrigation during the dry season.

The exceptional dryness of the summer along the Riviera, in the south of France, in Spain, and in the Mediterranean generally, is explained by the fact that this great inland sea lies on the northern limit of that part of the earth's surface to which, in physical geography, is given the name of "the rainless tract." The highest expression of this region is the desert of Sahara, which continues those of Arabia and Central Asia. The principal cause of their existence is, no doubt, the passage of north-easterly winds over Asia and southern Europe during the entire year, either as upper or surface currents. These winds, passing over continents and great chains of mountains, gradually lose their moisture, until they have but little to bestow on the regions they attain in the more advanced stage of their progress, and the latter consequently become dry regions or deserts for want of rain.

The winds that course over the earth's surface may be divided into two principal currents. The one, from the poles to the equator; the other, a return current from the equator to the poles. Owing to the earth's diurnal motion of rotation, the wind from the poles to the equator takes a slanting easterly direction; that from the equator to the poles, a westerly one. Thus, in the northern hemisphere the wind from the pole to the equator is a north-east wind; that from the equator to the pole a south-westerly one. From the tropic of Cancer, or from about latitude 30°, to the equatorial region, the north-east wind is always a surface wind, and constitutes the north-east trade. From the pole to the tropic the systemic north-east wind is either an upper current or a surface one, according to seasons and other influences.

The presence of high mountain chains in the south of Europe, and the rarefaction of the atmosphere by sun-heat in the great Mediterranean basin, both contribute to bring the upper north-easterly systemic wind to the lower atmospheric regions, and to make it a surface wind during a great portion of the year in the Mediterranean region. The south-westerly, or passage return winds, which are all but constant in the North Atlantic Ocean, consequently reach the shores of Europe, to the north of the Mediterranean level, during the greater part of the year. They bring moisture and rain with them; and thence the very rainy climate of Brittany, Normandy, and of the south and west coast of England. In winter, the trade winds, following the declension of the sun towards the equator, descend south; these south-west winds replace them, and thus descend to the most southern latitudes of Europe. The presence of these south-westerly winds at lower latitudes as winter approaches seems to be the principal cause of the autumnal rains in the south

of France, Spain, and in the Mediterranean basin generally.

Maury, in his interesting work on the "Physical Geography of the Seas," attributes the existence of the "rainless tract" in Asia and Europe to the influence of the Andes or Cordilleras of South America.

According to this view, the south-east trade winds of the southern hemisphere, after sweeping the wide surface of the Atlantic, and becoming perfectly saturated with moisture, reach the continent of South America below the equator; they cross it, and meet the huge mountain barrier of the Andes, ascending its eastern sides to an enormous elevation, varying from fourteen to twenty thousand feet. The extreme coldness of the upper regions of the Andes leads to the precipitation of the moisture which the winds contain—squeezes it out of them. Thence the origin of the immense rivers which descend from the eastern slopes of these mountains, such as the Amazon and the Orinoco, two of the largest rivers in the world.

These moist south-easterly Atlantic trades, after thus precipitating their moisture, become dry winds. In the equatorial calms they cross the north-east trades, ascend to the upper regions of the atmosphere, and then direct their course to the north-east, as an upper south-west current. Recrossing the South American continent, they reach the Atlantic, and cross it, still as an *upper* south-west current, for the north-easterly trades occupy the surface of the Atlantic between the 30th degree of latitude and the equatorial calms. Above the northern limit of the trades they again become *surface* winds, and constitute the south-westerly or passage winds of North Africa and of Europe. Reaching the north-western coast of Africa, still as dry winds—for, as we have seen, they

have passed the Atlantic as a dry upper current to the north-eastern trades—they have no moisture to give to a level surface, and thence according to this theory the desert of Sahara, and, in summer, the dryness of southern Europe.

The fact of the Mediterranean south-westerly wind in summer being a dry South American south-west wind, which has passed over the Atlantic as an upper current to the north-east trades, is proved, according to Maury, by a very singular natural fact. Occasionally, from time immemorial, a kind of red dust settles on the decks and sails of vessels in the Mediterranean and on its islands and shores. Submitted recently to microscopic examination, it has been discovered that this dust, which was supposed to come from the African deserts, is composed of the microscopic shells of infusoria which inhabit the Brazils, the dried summer beds of the tributaries of the Amazon and Orinoco. The furious south-westerly dry wind of these regions evidently raises them up as impalpable dust, wafts them across the Atlantic as an upper current to the north-east trade, and finally deposits them in summer on the Cape Verde Islands and Mediterranean Sea, on Sicily, on Malta, and on the Grecian Archipelago. Maury looks upon this fact as conclusive evidence of the crossing of the south-easterly and north-easterly trades in the calm regions of the equator, and of their return to the north and south poles as south-westerly and north-westerly winds. In winter, as the northern limit of the trade-winds is lower, these upper currents descend at a lower latitude in the Atlantic, and reach the Mediterranean not as dry winds but as moist water-laden south-westerly winds.

During the ten winters that I have passed at Mentone, living in the eastern bay, I have never seen a fog, either at sea or land, day or night, morning or evening. This fact appears the more singular, as on my first visit to Corsica,

in the month of April, 1862, for several days there was a sea-fog all round the island. It rose to about thirty feet above the sea or shore, the weather being beautiful and sunny, and I was told by passengers on board the steamer from Marseilles to Ajaccio that it extended from one port to the other. The following explanation given me by my late friend Professor Rogers, I believe to be the true one.

Whenever the air comes from the land it is from the north, and in this region it is so very dry that it absorbs all the moisture it can possibly obtain from the sea, however low its temperature, without forming vapour or fog. Whenever, on the contrary, the air comes from the south or seawards, both it and the land it reaches are so warm, that its capacity for the absorption of vapour is sufficient to enable it to continue to retain it until it has reached a considerable elevation. It does not, therefore, part with moisture, in the form of fog or cloud, until it has ascended the mountains to a considerable height. When the lowest clouds are several thousand feet higher than their summit, as is usually the case, the atmospheric dryness must be very great. In the upper regions of the sky, above the mountains, are often seen slight fleecy masses of cirrus, torn and twisted by aerial currents, which reflect in the most beautiful manner the bright light of the southern day. Still more beautiful are the dense masses of cumulus cloud which are frequently seen hanging over the high mountains of Corsica, on the south-eastern horizon, anchored as it were, to their summits. Towards sunset they are often tinged with glorious hues reflected from the west. The brilliancy of these clouds, floating in the upper regions of a serene, clear atmosphere, often several miles above the earth, is partly owing to their being composed of snow. Once the region of eternal snow is reached,—in

this latitude about eight thousand feet high,—the clouds themselves become congealed, and float in the air as masses of downy snow.

Generally speaking, the sky is clear, and the sun shines in the heavens like a globe of fire. Even on cloudy days the sun is often seen, and its power felt. So powerful are its rays, when the sky is clear, that even in December or January it is disagreeable to walk without the lined parasol, so generally carried in the East. The use of these parasols is not confined to the ladies, few gentlemen braving the sun without them. They are a positive want, and those who object to their use at first get headache, and are sure to adopt them before long. Those who have lived in tropical climates often assume the peculiar head-gear used in India as a protection against the sun.

Sunshine is quite different in the south of Europe to what it is in England and the north-west of Europe. In our climate the air, even in summer, is filled with watery vapour, which, as we have seen, gives a whitish hue to the sky in July or August, and mitigates the power of the sun's rays. In the Mediterranean region it is quite otherwise. In fine weather, winter or summer, the sky is of a hard blue, and objects at a distance of many miles are seen clearly and distinctly, without any of that haze which forms so peculiar a feature in an English landscape. Immediately behind the house where I reside, rises a mountain, the Berceau, the higher peak of which is 3850 feet high. It is generally, throughout the winter, perfectly free from clouds, and seems so near that nothing but absolute barometrical measurement convinced me of its real height; the summit does not appear to the eye to be above 2500 feet above the sea level at the very utmost. Indeed, this mountain, as well as its neighbours and companions, may be considered first-rate hygrometers.

The position of the clouds above its peaks, or on its flanks, indicates in the most unmistakeable manner the degree of dryness of the atmosphere. If we calculate 1° of difference between the wet and dry bulb thermometer for each 300 feet of elevation free from cloud, there must be above 8° of dryness in the upper atmospheric strata for this mountain to be entirely free from clouds and mist.

The great dryness of the atmosphere is proved by another interesting meteorological phenomenon. Even when the wind is in the south, and rain is falling in torrents, there is often a considerable difference between the wet and dry bulb thermometer (from three to four or five degrees). The rain appears to be formed in the upper atmospheric regions, and to fall through the air without saturating it, as is the case in northern climates. When such is the case, there is not that feeling of dampness usually experienced when rain falls in the north; chest invalids are not oppressed as in moister climates.

There are thus many influences that combine to render the atmosphere dry in winter: the prevalence of northerly winds, the great power of the sun, the freedom from fog, the small number of rainy days, and the dry, rocky character of the soil. This dryness of the air is illustrated by the fact, that wet linen dries out of the sun, in a short time, at any period of the winter, except when it rains, or the sky is obscured. Throughout the winter it is possible to sit out of doors for many hours at a time, and for many days together, in sunny sheltered spots. This I am in the habit of doing myself, every winter, in leisure hours. I merely choose a spot sheltered from the wind, at the foot of a wall, rock, or olive-tree, and exposed to the sun, from which it is, however, generally necessary to be protected by a lined parasol. Without this precaution the position would often be quite untenable. A thermometer

in such a situation, in the shade, generally marks from 60° to 64°. At the lounger's feet, and around, are always insects, attracted in rocky places by the masses of wild thyme, and by other flowers.

There is a great charm in thus reading and musing for hours, especially with agreeable companions, seated on the ground, in some lovely, sunny, picturesque nook, such for instance as the western coast of the Cap Martin, or the warm terraces of the eastern bay. Nothing is more invigorating or refreshing to the invalid. Indeed, this lazarone enjoyment in midwinter, of sunshine, air and scenery, is much more beneficial for invalids and aged persons than long tiring walks.

Whilst speaking of insects, I must mention that one of the charms of the climate is, that, notwithstanding the warmth and sunshine of the days, there is an all but complete immunity from all venomous insects, gnats, or mosquitoes during the winter, after the first cold nights in December, unless the latter are kept alive artificially by the bedroom being maintained at a high temperature. If they are fed at night, and thus kept warm in the day, they may live on indefinitely all winter. This immunity is owing to the general coolness of the night temperature. Previous to that time, in the autumn, the mosquitoes are very troublesome, owing to the beds being generally furnished with curtains which are no protection whatever. They are usually open, and of too close a material for it not to be insufferably close when they are brought together. It is quite worth an invalid's while to have regular net mosquito-curtains, such as are used in India, made on arrival. Once they have disappeared, the mosquitoes do not reappear until summer.

According to M. de Brea's statistics, omitting the fractions, the annual number of fine days in which the sun

shines without clouds is 214; the number of days in which the sun shines with clouds is 45; and the number of days in which the sun is not seen, the sky being completely obscured, without rain, is 24. To which we may add days of rain 80, many in part sunshiny.

The rainy days principally occur between the months of October and May. In summer, as has been stated, there is sometimes not a drop of rain for months together. The winds can then blow from the south without their vapour being condensed into clouds and rain on the mountain summits which skirt the coast. The mountains are themselves heated with the powerful rays of the summer sun, and the sea-borne winds meet currents still warmer than themselves. Even in winter, a very gentle south wind from the sea may not bring cloud and rain. All its superabundant moisture may be at once taken up owing to the great dryness of the colder mountain atmosphere.

Notwithstanding the mildness and sunny brightness of the weather, yet it is still decidedly winter at Mentone from December to April.

The nights are chilly during four months—from December to April—the thermometer generally falling to between 46° and 54° with south winds, and with north winds to between 40° and 45°, sometimes below 40°. In the daytime it is generally cool in the shade, and out of the shade when the sun is obscured by clouds. The ordinary "shade maximum" varies from 50° to 56° when the sun shines, and is lower still when it does not. The temperature always falls as soon as the sun disappears or sets, and often at once reaches the minimum of the twenty-four hours, owing no doubt to a cool down draught from the mountains. The heat is evidently produced by the direct influence of the sun. In a south room, whenever

the sun is on the room, the window can be left wide open; and, without a fire, the thermometer will generally remain at about 64°. But as soon as the sun disappears, the window has to be shut, and chilly persons require a wood fire. In midday, the north rooms on the same floor are, even when the sun shines, four, six, or eight degrees colder than the south. Even before sunset, as soon as the sun disappears behind the mountains, there is a difference of six or eight degrees in the temperature of the atmosphere if northerly winds prevail. When the sun is permanently obscured by clouds, the air often feels chilly, even with a south wind, and the complaints against the climate are loud and numerous.

These complaints seem partly to have their origin in the extreme depression which appears to attack the entire community, but more especially the invalids, when the weather is thus cloudy and wet, and the sun is obscured. I have both observed this depression and painfully experienced it myself. In such weather most of us are indescribably wretched and miserable. Then, indeed, we feel vividly that we are poor invalids, exiles from home, stranded on the shores of the stream of life. But with the return of bright sunshiny weather, all these gloomy thoughts disappear. Once more we are gay and cheerful; inclined, indeed, to look on our ill-health as in some respects a positive advantage. Is it not the cause of our being able to avoid the dreary winter of our northern cloud-girt island? Is it not to our break-down that we owe the temporary freedom from the cares and duties of real life—the real schoolboy's holiday we enjoy?

It is a general source of remark, and often of complaint, that the air feels cooler than the thermometer would lead one to suppose the temperature to be, and this remark is not without foundation. Owing to the general dryness of

the air, evaporation takes place very rapidly from the skin, absorbs heat, and produces a sensation of coldness. It is this same feeling that is experienced when the face or hands are bathed with eau-de-Cologne. The rapid evaporation of the spirit causes rapid abstraction of caloric, and thus occasions the sensation of cold. It is by the same physical law that the water is cooled which is contained in the porous jars, so much used in Spain and in warm climates in general. The moisture that exudes on to the external surface is evaporated by the atmosphere, abstracts heat, and cools the water inside. In a dry atmosphere like that of the Riviera, human beings are mere "porous jars," and are cooled down, like the water they contain, by rapid evaporation. This fact, and its physical interpretation, accounts for the absolute necessity of very warm clothing, and for the appearance of the rheumatic pains which often follow the neglect of this precaution.

The Mentone vegetation shows the influence of a powerful sun warming a chilly atmosphere. Deciduous trees lose their leaves in December, as soon as the nights become cold, and do not regain them until April, when they are becoming warmer. The green, forest-like appearance of the hills and valleys, in midwinter, is owing entirely to the evergreen Olive, Orange, Lemon, and Pine-trees. The few deciduous trees are mere dry sticks until April. On the other hand, in sheltered situations exposed to the south, the heat of the sun during the day so warms the soil, that it has not time to cool at night. These situations thus become regular forcing-beds, producing, as I have stated, Violets in December, Anemones in January, and all our spring flowers early in February. In shady situations, where the sun does not penetrate, the ground-vegetation remains torpid, like the deciduous trees, till March. As,

however, the sun-exposed localities are very numerous on the sheltered lower hills, and in protected valleys, away from the sea, the ground-vegetation is all the winter very luxuriant and abundant, offering great resources to the botanist and florist. Indeed in the warmer valleys the only winter is on the thoroughly rainy days.

From what precedes, it will be perceived that the characteristics of the climate of Mentone, and of the Riviera in general, as evidenced during the ten winters I have spent there, are: absence of frost, prevalence of northerly winds, moderate dryness of the atmosphere, complete absence of fog, paucity of rainy days, clearness and blueness of the sky, general heat and brilliancy of the sun, a rather cool or chilly night temperature, and a bracing coolness of the atmosphere throughout the winter, out of the sun's rays. Even when the sun is obscured by clouds, and rain falls, as the wind is then generally from the south-west or the south-east, it is not cold at any period of the winter. On the rare occasions, however, when it rains, with the wind from a northern quarter, there may be as miserable and chilly a state of things as in a drizzling November day in England. As rain only falls on a small number of days, and then often not during the whole day, and as the other days are uniformly bright, clear, and sunshiny, for five days out of six, throughout the winter, exercise in the open air can be prudently taken, from nine until three, four, or five P.M., according to the season, with both pleasure and benefit.

Notwithstanding the complete protection from the north, north-east, and north-west, the wind is often rather high near the shore. Even when in the northern quarters, it occasionally seems to come from south-east or south-west, the open region, no doubt owing to the land-locked character of the district. Still, however strong the northern winds

may be, the mountain valleys and the more internal hills are quite sheltered and protected. The smaller or eastern bay is decidedly better protected from the north winds, and is several degrees warmer than the western, owing to a spur from the Berceau mountain rising immediately behind the houses which line the shore. There certainly is no atmospheric stagnation at Mentone, as some writers have very erroneously asserted. On the contrary, there is constant atmospheric circulation from the sea in the day, from the high mountains at night.

According to Admiral Smyth, in his very interesting work on "The Mediterranean"* (p. 233), the most prevalent winds in that sea are those that blow from west round northwards to north-east, during two-thirds of the year, from May to February. During the months of February, March, and April, on the contrary, the south-east and south-west winds would prevail. My experience of the Mentonian shore during winter only partially agrees with this statement. In October and the early part of November, after the autumnal equinox, south-west winds have appeared to me to prevail, bringing the heavy autumnal rains. Then the north winds gain the upper hand, and usually, but with occasional temporary exceptions, reign until the spring months, March and April. At this epoch, the south-westerly and south-easterly winds seem to have the ascendancy, giving rise to the gales and rains of March. The prevalence of northerly winds during the winter months, in most years, is the real key to the climate, as I have already stated. During the four cold winter months, November, December, January, and February, the high mountain barrier protects the amphitheatre from these northerly winds. During the early spring, in March and

* "The Mediterranean: a Memoir, Physical, Historical, and Nautical." By Rear-Admiral W. H. Smyth. Parker. 1854.

April, the prevalent southerly winds, to which it is quite open and exposed, bring genial warmth and fostering showers.

The southerly winds, to which Mentone is fully open, whether they bring rain or not, are generally mild, if not warm. The south-east, or sirocco, the plague of southern Italy, all but loses its languor-creating, pernicious character, in autumn and spring, by the time it strikes the head of the Gulf of Genoa. Originating in the African deserts, it leaves the African shores as a hot, dry, scorching wind, imbibing abundant moisture as it crosses the Mediterranean. Whenever it reaches the shores of southern Italy it is impressed with this double character, heat and moisture, and is much dreaded. When it arrives at Mentone it has passed over the heights of the Apennines and the high granitic range of Corsica, some of the summits of which are clothed with eternal snow. It has thus become much cooler than in the south or centre of Italy. Indeed, in the months of February and March, the sirocco is so cooled by the great mass of snow on the Corsican mountains that it may reach Mentone, as already stated, as a cold wind, bringing cold rain, and sometimes snow into the amphitheatre. The only occasions on which I have seen snow within the amphitheatre have been under its influence.

There is geological evidence that in times past the desert of Sahara was covered with water, which was probably one of the reasons for the Alpine glaciers descending into the plains of Lombardy, for then this south-east wind or sirocco would not present its present characteristics. When this inland sea dried up, and the present desert of Sahara was formed, the hot sirocco wind must have appeared, and have much contributed to the melting of the glaciers of North Italy.

On reading Admiral Smyth's valuable work I have been struck with the remarkable agreement between my observations on the winds, and on their influence over weather and climate in the western Mediterranean, and the results of the observations of the ancient Greeks, made at Athens more than two thousand years ago. There is still extant at Athens a kind of observatory tower, erected by the astronomical architect Andronicus Cyrrhesthes, which has survived the wear and tear, the storms and catastrophes of twenty centuries, for it was probably built about one hundred and fifty years B.C. This tower is octangular in form, and gives the eight points of the compass then recognised, with the reputed quality of the winds in the meridian of Attica, by symbolic statues. I cannot do better than reproduce Admiral Smyth's description of this interesting monument of antiquity (p. 278).

"The Tower of the Winds is an octangular marble edifice, which in 1820 was in very tolerable preservation, being entire, with the exception of the moveable brazen triton which surmounted it, and pointed with a wand to the quarter from which the wind was blowing. On the upper story of each side of the tower is excellently sculptured a large winged figure, in relief; those which represent cold weather are mature old men, full clothed and bearded, in a style which the Athenians chose to call barbarian; and the milder winds are personated by youthful figures, more lightly clad. Above them their names appear in uncial characters; and they are divided below by a cornice from large dials constructed and accommodated for each face; those for the verticals of the cardinal points being regular, and their intermediates declining. It appears truly admirable for its object, as an indicator of weather and time to the Athenians, though, from its

proximity to the Acropolis, it was badly placed for the vane-triton's showing the true line of the winds, since it could not be free from eddies.

"Over the door appears Schiron, the representative of north-west winds; he is robust and bearded, with warm robes and boots, and, though mostly a dry wind, to show that he occasionally brings rain, he is scattering water from a vase.

"Zephyros, the soft and benign western breeze, is a light-clad, bare-legged youth, gliding slowly along with a pleasing countenance, and bearing flowers and blossoms, somewhat significant of ζωὴν φέρω (I bring life), in allusion to his genial influence in gardens.

"Boreas, the impersonification of the fierce and piercing north wind, is a bearded old man, warmly clothed, but without a water vase; and he is so much affected with cold, that he guards his nose and mouth with his mantle —an action which has been mistaken for blowing the flabra, or wreathed conch shell.

"Kaïkias, or the north-east wind, which in winter is the coldest in Attica, is represented as an elderly man spilling olives off a charger, to denote his being unfavourable to the fruits of the earth, and especially to olives, with which the plain of Athens abounds. Stuart, however, insists that instead of fruit he is holding hailstones in a shield.

"Apeliotes, who represents the east wind, is a handsome youth, indicating gentle motion, and bearing various fruits in his mantle, together with a honeycomb and wheat-ears, in token of his being favourable to orchards.

"Eurus, the south-east wind, so often accompanied by tempestuous weather, is represented as a morose old fellow, nearly naked, the agitation of whose drapery implies occasional violence.

"Libs, the south-west wind, and the *traversia* of the Peiræus, a robust, stern-looking man, bearing the aplustre of a ship, which he seems to push before him. The Romans, who usually copied the Greeks, gave dusky pinions to Libs, in allusion to its changeful energies, being by turns hot, cold, dry, rainy, serene, and stormy, insomuch that it was reckoned unfavourable for ships to sail from the Athenian ports while the weather hung in the south-west.

"Notos, the south wind, has a sickly aspect, and clouded head, significant of unwholesome heat and dampness; and he is emptying a water-jar, as the dispenser of heavy showers in sultry weather."

In addition to these winds, I must mention, that very often, when it is very fine, and when the sun shines with force on the Mentonian amphitheatre, there is a very decided sea-breeze during the middle of the day, as in tropical countries. The air, becoming heated and rarefied in the mountain basin, rises, and cooler air from the sea rushes in to supply its place. But for a decided sea-breeze thus to rise in winter, there must be a strong wind blowing from some of the northern quarters. When this is the case, in the early part of the day until about eleven o'clock, the north wind, only reaching the sea at some distance from the beach, owing to the mountain protection, leaves the waters inshore calm, or nearly so. The sea air that then rushes in to supply the place of the rarefied land air, pushing angry billows before it, is merely the north wind that having passed overhead and gone out to sea, is being pulled back by the midday heat. When the air is perfectly calm in the upper and lower atmospheric regions, the calm of the early morning continues all day, because there is then no strong wind and angry sea to be pulled back by the effects of land heat. The latter in

winter is not sufficiently powerful to create this little monsoon when the atmosphere is in a state of complete repose. It was long before the above facts became clear to me, and before I understood why, on two days apparently identical as regards sunshine, the morning calm on one occasion continues all day, and on another gives place, about eleven o'clock, to a strong sea-breeze and to a rough sea.

In winter, the sea-breeze reigns from about eleven to three. In summer it begins much earlier—before eight. Thus, the seashore of Mentone is decidedly windy, especially in early spring, and this sea-breeze is often cold and searching, for it is the north wind, which has passed overhead, pulled back. This is a fact that invalids ought to remember. They should bear in mind that the gentle breeze that fans them when sitting on the sea-beach on a fine sunny day, may be merely a cruel, treacherous north wind pulled back by the heat, and to be carefully avoided. This return sea-breeze can, moreover, be completely avoided by leaving the shore and gaining the numerous valleys. We must recollect, however, that wind is a health-giving agent, a purifier of the earth, that a place where there is no wind would soon become a mere carbon-loaded well, perfectly pestilential, especially in a southern climate. It is only detrimental to confirmed invalids, and they can easily avoid it at Mentone, without remaining indoors, unless on the rare occasions when a hurricane is blowing.

The sea-breeze, which daily pours into the Mentonian amphitheatre when the dry north winds blow, having imbibed moisture from its contact with the sea, modifies, diminishes the extreme dryness of the northerly winds, an important fact for the invalid population. Thus, unless there is a hurricane from the north, the dryness is never extreme. The wet-bulb thermometer shows this influence.

On these days it generally rises a couple of degrees by midday, showing that the atmosphere has become so much the moister.

At night there is a land-breeze, which descends from the mountains to the shore and sea. Between the subsiding of the night land-breeze and the rising of the day sea-breeze, and again between the subsiding of the day-breeze and the rising of the night land-breeze—in fine, bright sunshiny weather—there is a period of repose, a lull, during which the air is calm. The present Italian mariners call this period of calm *bonaccia*, as being unaccompanied by danger; their more sturdy Roman predecessors designated it *malaccia*, from its being a cause of disagreeable detention. This period lasts, in winter, from eight to eleven, A.M., and from three to six or eight, P.M., according to the length of the day and the amount of sunshine. The morning lull is the time for confirmed invalids to walk on the shore. Those who are well—the strong, the healthy—can receive no harm whatever from a good blow, if well clothed, and not heated by violent exercise.

The land-breeze from the mountains, at night, is usually very gentle, especially in winter. Occasionally, however, owing to sudden change of temperature between land and sea, the land winds descend suddenly and with great impetuosity, as in all parts of the Mediterranean skirted with high mountains. Thence the general use of "lateen or triangular sails, attached to yards that can instantly be let down by the run, for the xebecs, feluccas, and other craft which coast the shores within their influence."

It is only at night that the land-breeze descends from the high mountain ranges. It is quite perceptible, even in winter, as soon as the sun has set, especially in the western bay. The greater warmth of the eastern bay is evidently due to the protection of the secondary range of

hills, which, rising immediately from the sea, cuts off, as it were, this cold air current. In the western bay the valley of Gorbio is similarly protected by the sandstone hill of Sta. Lucia. Consequently the temperature of the valley is also exceptionally warm, as evidenced by its early and luxuriant vegetation. Wherever there is a gully, ravine, or torrent bed, the temperature is generally two or three degrees lower at night than elsewhere in either bay, owing to their forming funnels down which these colder mountain currents descend to the sea.

In summer the cold mountain currents at night powerfully contribute to diminish heat; and, combined with the day sea-breeze, produce a much cooler and more equable temperature than is found inland in the same latitudes.

Thus, the temperature is very seldom above 80° Fah. at any time in the summer, whereas both in Paris and in London a higher temperature is reached every summer. On the other hand, during several months, June, July, August, and September, there is but one or two degrees difference between the day maximum and the night minimum, which constitutes the real drawback of the summer climate, especially for invalids.

The difficulty of recognising from which direction the wind blows is very great at Mentone when there is a calm in the lower atmosphere, or when northern currents from the north-east or north-west are diverted to the south-east or south-west by the mountains which form the bay. When this is the case, and also under the influence of the sea-breeze, all the weathercocks will point to the south, when, in reality, the weather and climate-influencing wind comes from the north. All my early observations were invalidated by the non-recognition of these facts, and I think most of those that have been published have been invalidated by the same cause. Very often it is only

by consulting the wet and dry bulb thermometers that I can solve doubts as to the real direction of the wind. They are of great assistance, for north winds are always dry, and south winds moist.

This apparent twisting and turning of a north-east wind to the south-east as it enters the bay, of a north-west to a south-west, and the frequent sea-breeze, give to the wind the appearance of nearly always coming from the south. This error, a most palpable one, has, I believe, been made by most observers. There are, in reality, many eddies and local currents in the Mentonian amphitheatre which are insignificant as regards weather and climate. It is the upper currents alone that rule the weather and the climate, and they can only be ascertained by a careful examination and study of the position and progress of the clouds in connexion with the highest mountain summits. The local weathercocks are all but useless for this purpose.

The climate of the Mentone amphitheatre and of the Riviera in general is a favourable specimen of what botanists call the warmer temperate zone. Plants live nearly everywhere that frost kills, many annuals in a colder region become perennials, and many forms of vegetation new to the more northern flora make their appearance. It is the Mediterranean climate, but that of the more favoured Mediterranean regions. In Italy, for instance, the most protected southern parts must be reached to find the same immunity from frost. On the southern shores of the Mediterranean, in Algeria, there is the same immunity from frost, but, owing to the presence of the Atlas mountains, cool rains predominate throughout the winter, with the north winds, which usually rule at that time of the year. Mentone also is warmer, and more protected from northern winds than its neighbour, Nice, more so than Cannes, although the general

features of the climate must be the same, for all are only a short distance apart. It is the question of fruit walls in the same orchard, one higher and giving more protection than the others, but all turned towards the south. At Nice there are sheltered situations, such as the Cimiez, the Carabacel, and Villefranche, in which the protection is greater than in the town itself, and which thus assimilate to Mentone, without, however, equalling it.

It is well to recollect that in such a climate, in the warmer temperate zone, winter is by no means avoided. The descriptions of the winter climate of Nice, Cannes, Hyères, and Italy in general, contained in most books of travel, works on climate, and guide-books, are mere poetical delusions. The perpetual spring, the eternal summer, the warm southern balmy atmosphere, described to the reader in such glowing terms, only exist in the imagination of the writers. Although there is so much sunshine, so much fine weather, such immunity from fog and drizzling rain, we are still on the continent of Europe, with ice and snow behind, for more than two thousand miles, to the north pole. It is still winter. Wind, rain, a chilly atmosphere, and occasional cold weather, with snow on the mountains and flakes of ice in exposed situations, have to be encountered. It is as well, therefore, that the invalid traveller should be prepared to encounter them. Otherwise, anticipating an Eldorado, balmy zephyrs, perpetual sunshine, and an ever-smiling nature, he is disappointed. I believe that continuous warm weather in winter, and the complete absence of cold days or nights, are not to be met with in the temperate zone, only in tropical regions, and these regions present many drawbacks both to health and comfort. If they are considered requisite, however, the tropics, or at least Madeira, should be selected, not the Mediterranean; or better still, the summer searcher

should at once go to the Antipodes, to Australia, or the Cape.

The existence of Orange and Lemon-trees, of Geraniums, Heliotropes, Verbenas, and Roses, flowering throughout the winter, does not necessarily imply the absence of cold weather, merely the absence of absolute frost. This is well known to all who are familiar with the management of conservatories and of winter flower-gardens in England. Once the flowers, gathered from every clime, which make an English conservatory such a scene of glory in winter, are fully in blossom, and have been brought in from the forcing-houses, all gardeners know that a rather low temperature is beneficial, and prolongs the bloom and beauty of their floral favourites. The Chinese Primulas, the Heaths, the Epacrises, the Camellias, the Azaleas, the Correas, the Chorozemas, the bulbous plants, continue to expand and thrive at a night temperature of from 38° to 44°. It is the frost they fear.

A few miles from Mentone, at Bordighera, groves of Palm-trees grow in great luxuriance, and are looked upon by all travellers as evidences of an all but tropical climate; as are those that grow on the "Place" at Hyères, and in the gardens at Nice. Such, however, is not the case. Palms will grow as out-door trees in any region of the Riviera, and would be generally cultivated, were it not that their cultivation is unprofitable everywhere, except at Bordighera, which has the monopoly of supplying Rome with palms on Palm Sunday. But they either do not produce fruit, or their fruit is not fit to eat. To ripen the fruit of the date Palm the sultry summer heat of the south-east coast of Spain, of Egypt, or of the desert of Sahara is required. Even in Egypt the Arabs place the dates in jars, which they bury in the sand to complete the process of ripening. This tree may be compared, when

growing in southern Europe, to the Chestnut-tree in the north of England. As a tree, the latter grows with us in great luxuriance, but its fruit is all but worthless. The centre and the south of Europe alone have sufficient summer warmth to allow the fruit to reach perfection. The presence of magnificent Chestnut-trees in our climate does not, therefore, indicate that it is a warm one. I have, indeed, seen edible Chestnut-trees in the Highlands of Scotland, as, for instance, at Arrochar, on Loch Long, growing with the greatest luxuriance.

The proximity of the sea exercises a considerable influence over the climate of Mentone, as the temperature of the Mediterranean is never very low. When the weather is cold, and especially when the sun is obscured, the sea is a reservoir of heat, and perceptibly warms the air; for it is then warmer on the sea-level than on the hills. When, on the contrary, as is usually the case, the sun shines, the evaporation which constantly takes place cools the air at the sea-level, and it becomes perceptibly warmer as the hills are ascended. There are sheltered sunny nooks in the vicinity of Castellare, a mountain village 1500 feet above the sea-level, where, owing, no doubt, to the concentration and reverberation of the sun's rays, the climate is exceptionally mild, and where violets and anemones appear at least ten days before they are found at much lower elevations, or even in sheltered spots at the sea-level.

The summer climate of Mentone is said to be cool and pleasant, owing, as we have seen, to the sea-breeze which sets in regularly in the morning, and blows the greater part of the day, and to the cool land-breeze which descends at night from the higher mountains. But then, on the other hand, it remains, night and day, at a high temperature for several months. In the tropics, on the seacoast,

there is also this sea-breeze daily, which makes the warm weather bearable, even agreeable to some; but it does not prevent the high temperature producing its usual physiological effects on the human frame. Warmth, when the air is stagnant and loaded with moisture, is very difficult to endure, because the insensible perspiration collects on the skin, and is not carried off. This renders warm weather so unpleasant in England, where the air is generally more or less saturated with moisture. When, on the contrary, there is a light breeze fanning the body, and the air is dry, as on the Mentone coast, the perspiration is constantly carried away, and the body cooled by its vaporization. The trying feature of the summer climate in the Riviera is undoubtedly the high night temperature, which has to be borne constantly, during the summer, from May until October.

Thus Sincapore, under the equator, has a temperature of about 84° all the year through, variation being limited to two or three degrees. This heat is not extreme; it is much less than that of India in summer, but its continuance renders Sincapore anything but a healthy residence. It suffices to bring on the fevers of hot climates anywhere.

Such being the case,—although persons in health may find it an agreeable residence,—I do not advise invalids to remain at Mentone during the summer season. If they do not wish to return to England, the best summer climate in Europe for health, they had better seek a refuge from the heat in some of the high mountain sanitaria to which the medical men of Nice, Geneva, and Switzerland send their patients. I may mention, as easily accessible, St. Dalmas, on the Maritime Alps, about six hours' distance from Mentone; the Grand Chartreuse, near Coni, in Piedmont; and further away, the Grand Courmayeur, a well-sheltered and picturesque mountain valley, with sulphur springs,

near Aosta, on the south side of the Mount St. Bernard. I have sought for such a refuge in Corsica, which the weekly steamers from Nice now render very accessible, but hitherto without any success. The cool summer climate exists there, but without the accommodation which would make it useful or available, as will be explained hereafter.

Some of the mountains that surround the Mentonian amphitheatre are above 4000 feet high, the Aiguille and Gran Mondo for instance, and present lovely plateaux and Pine forests, and would offer a charming summer retreat, were Pension Hotels built upon them. The time will come, no doubt, when this will be accomplished, and when the winter invalids will only have to ascend the mountains that have protected them from the north winds in winter to find shelter from the south in summer. But now these mountain heights are left to the shepherds.

In Switzerland there are many retreats of this kind, at variable grades of elevation. Amongst the pleasantest and best, according to a friend, the late Dr. Bezancanet, of Aigle, are the baths of Morgins, in the Valais, above 4000 feet high, a charming mountain valley, well known for its strong chalybeate spring. I have not myself been there, but have been told that it is a delightful retreat from the heat of a continental summer, and that the air is bracing, without being chilly. The valley is wide, and the sky generally bright and clear. A respectable hotel has been recently built, which affords travellers and invalids the protection and comforts they require. I may also mention Sepey or Ormonds, about seven leagues from Vevay, 3300 feet high; and La Rossinière, a pretty mountain village, with a good hotel. Aigle, Bex, and Clarens can be recommended for early summer. The three latter are on the level of the Lake of Geneva, itself 1200 feet

above the sea-level, so that the elevation is still considerable. In early summer and in the autumn they are better calculated for the invalid than the higher elevations, which are only suited for invalids during the great summer heats—from the middle of July to the end of August and the middle of September. At all these places there are comfortable *Pensions* at very reasonable rates.

In cases of phthisis, more especially, extreme heat should be avoided during the summer, as calculated to accelerate the progress of the disease. The patient should, indeed, be kept in a temperature below 70° Fah. This, in Continental Europe, can only be done by leaving the plains for the mountains, and attaining thereon a considerable elevation—at least four thousand feet.

There is, however, some little risk to be encountered by those who thus fly to the mountains to escape the heat of the plains. If the summer is dry and fine, all is well. The mountain air is found pure and bracing, the scenery is enchanting, and health often improves rapidly. But if wet weather sets in, the mountain retreats are at once enveloped in cloud or fog, and may remain so for weeks, to the great detriment of the consumptive patient. Again, the latter is surrounded by healthy, enthusiastic tourists, eager to explore the majestic beauties of the Alpine scenery, which they have come to see and explore. Their example is contagious, and it is very difficult for the most reasonable not to be led away, and induced to do more than is desirable or prudent.

I have known many break down from one or both of these causes, and under the influence of accidental disease, to lose completely in a few weeks all the benefit gained by a winter's residence on the Riviera. It is the recollection of such cases that makes me now always recommend the invalids whom I have carried safely through the winter to

leave touring to better times, and to return if possible, for the summer, to cool, green, healthy England. If not possible or desirable, the summer may generally be spent more safely on the coast of the North Sea or of the British Channel, at any of the ports between Ostend and Trouville, than in Switzerland.

One of the best summer stations in Switzerland is, unquestionably, St. Moritz, in the upper part of the Engadin valley, on the river Inn, at an elevation of 5300 feet. St. Moritz has become a favourite summer resort of late years, and there is now plenty of hotel accommodation. The air is said to be cool and pleasant throughout the summer. At this height, in case of rainy weather, the clouds often lie at a lower elevation, and the bad weather may be partially avoided. For thoroughly convalescent patients a residence in these Alpine regions in the months of July and August may be advantageous as well as agreeable. But it is not judicious or safe for those who are suffering from serious chest disease to run the risk of possible cold, stormy weather, which at so great an elevation in the Swiss Alps may occur even in midsummer.

It has been proposed lately to send consumptive patients to the Engadin for the winter. I only look upon this proposal as an evidence of the reaction taking place in the medical mind against the treatment of phthisis by tropical warmth and moisture. The same reaction has occurred in the United States, where some physicians are sending patients to St. Paul, in Minnesota, for the sake of a dry cold that freezes the rivers many feet deep. Thus the human mind, like the pendulum, has always a tendency to go to extremes, although truth and prudence say: safety lies in the middle course, "*In medio tutissimus ibis.*"

CHAPTER V.

FLOWERS AND HORTICULTURE ON THE RIVIERA.

"Heureux qui mollement laisse couler sa vie,
Sans chercher les honneurs, sans exciter l'envie,
Dans les palais des grands, peu jaloux d'être admis,
Et parmi ses égaux sait choisir ses amis."

How many there are among the busy workers of social life chained to town duties, cares, and occupations, living in an atmosphere of bricks and mortar, who have a secret passion for flowers and horticulture! Such was my case for many a year. This passion burst forth in early youth in an enthusiastic devotion to botany, which had to be surmounted and surrendered with a sigh for less fascinating but more important studies. If, later in life, invalidism has brought with it any solace, any compensation for a forced withdrawal from the active duties of an "excelsior" career, I have found it principally in "flowers," and in their cultivation. To a medical man the study of flowers and plants, of horticulture, has an exceptional and peculiar charm. It is merely continuing in the vegetable creation the professional study of life, of its functions and diseases. The field is a fresh one, but the main facts observed and studied are the same. Indeed, I may safely say that the analysis of the phenomena of life in the vegetable world has much aggrandized and deepened my knowledge of the same phenomena in the human being. Many are the errors committed by learned physicians, which if committed by a gardener in his glass-houses would cost him his place in three months. His

plant clients would fade and die, and he would be turned off as "incompetent." An old writer on gardening, whose name escapes me, quaintly remarks that a flowering plant is like a very delicately organized human being. If treated with fostering care and attention, it returns the labour and affection a hundredfold, becomes a thing of beauty producing lovely flowers to rejoice the heart of the friendly owner. But if neglected and abandoned, or treated with capricious tenderness, it fades, droops, and dies.

I have long had a garden in heather-clad, fir-covered Surrey, where summer flowers smile on me when I return from the South, but it is only a few years ago that the thought came to establish a garden on the sunny shores of the Riviera. At first I was satisfied with the luxuriant wild vegetation of winter in this region, with the sunshine, and with the natural beauties of the district. As I became more and more familiarized with my winter home, I began to grieve that the precious sunshine, light, and heat, that surrounded me should be turned to so little horticultural account. Nature in these southern regions is left pretty much to herself as regards flowers, and it is surprising what floricultural wonders she does produce unassisted. Then the desire came to see what I myself could do with the gardening lore previously acquired in England. So I purchased a few terraces and some naked rocks on the mountain side, about a mile from Mentone, three hundred feet above the sea level, with a south-westerly aspect, and thoroughly sheltered from all northerly winds. Here, hanging as it were on the flank of the mountain, I have set to work, assisted by an intelligent peasant from the neighbouring village of Grimaldi, whom I have raised to the dignity of head-gardener, and in whom I have succeeded in instilling quite a passion for horticulture.

We think we have done wonders in the first three years of our labours, and as the results obtained throw a considerable light on the winter climate of this part of the world, I shall briefly narrate them. I am encouraged to do so also by the reflection that should this work fall into the hands of others trying, like myself, to establish a winter garden in the south of Europe, my experience, slight as it yet is, may be of some avail.

I would firstly repeat that I think I have found out why horticulture is so utterly neglected in the south of Europe, and in warm countries generally. Mere ordinary gardening—the cultivation of common garden flowers—is attended with considerable expense, owing to the necessity of summer and even winter irrigation, if any degree of excellence, or if certain results, are to be obtained. In climates where, as on the Riviera, it does not rain from April until October, where the rain falls tropically, in cataracts, at the autumnal and vernal equinoxes, and where often in midwinter there are droughts of six weeks' duration under an ardent burning sun, frequent watering becomes indispensable for most garden plants. Thus additional labour is required, and a heavy expense entailed, in addition to that of the ordinary work of the garden.

On the other hand, southerners of the higher and middle classes are thrifty and economical, have few outlets for activity, and are at the same time indolent. Those who have property usually live on one-fifth of their income, and put by the rest. They thus provide for their children, and yet can remain quiescent, taking life easily, and spending their days in an agreeable state of "dolce far niente." By such persons horticultural expenses are considered an extravagance, and those foreigners who indulge in them are thought to be all but demented. They understand

MY ITALIAN GARDEN (ENTRANCE).

paying labour for planting and irrigating Orange-trees, Cabbages, Peas, or Wheat, because there is a return—a profit on the transaction; but to spend good money on Roses and Jasmines, unless to make perfumes for sale, passes their comprehension. Thus my Mentone neighbours think I am preparing for the erection of a large house, and nearly all the masons in the country have applied to me for my patronage. They cannot understand any one making a mere flower garden for pleasure on the mountain side, a mile or two from the town, so I am asked building prices for the all but worthless land around me, and thus I find it difficult to extend my garden domain as I should wish.

The soil of the garden is the usual lime soil of the country, formed by the break up of the oolitic limestone rocks which form the skeleton of the district. Rich in the mineral elements required for vegetation, it is poor in *humus*—in the organic constituents; so that it requires manure to bring out its powers, which with the addition of the latter, are considerable. The climate of Mentone is, as we have seen, a very peculiar one, and although the preceding chapter contains a full account of its meteorological character, it may be as well to briefly recall the chief "horticultural" features.

From the beginning of April until the end of September, or the beginning of October, there is no rain at all—scarcely a shower. The sky is clear, the sun ardent, the light intense, the heat varies from 74° to 84°, and is nearly the same by day and by night. Between September and April about twenty-five inches of rain fall, the greater part about the autumnal and vernal equinoxes. From the middle of December to the middle of February the night minimum is about 44° Fah., the day minimum about 54°, in the shade. Two or three times in the winter the ther-

mometer goes down for a night or two to 38°, 36°, 34°, or even 32° in exposed situations, at the mouth of ravines and torrents, on the seashore, but it never freezes in less exposed localities. These temperatures of mid-winter are reached by a gradual fall of the thermometer in autumn as the days shorten, and by a gradual rise in spring as they increase in length. The entire region is protected by an amphitheatre of mountains nearly 4000 feet high, from north, north-west, and north-east winds. Thus the inhabitants, animal and vegetable, are like plates in a plate-warmer before a kitchen fire—*videlicet*, the sun; or like fruit trees on a south wall. Such are the data on which the vegetation of the district is based; long droughts with a high temperature in summer, all but tropical rains from the south-west in autumn and spring, dry sunny weather in winter, with, for two months, a night minimum temperature of about 44°, and no frosts.

Such climatic conditions are peculiarly suited, as already stated, to the Olive, the Lemon, and the Orange tree, which cover the hill sides, and constitute all but the sole agricultural produce. In the gardens, such as they are, mostly, if not entirely planted as adjuncts to the villas built for strangers, many flowers and plants will thrive and blossom, more or less, all winter, with scarcely any care. Thus, the following grow luxuriantly, and many can stand the summer drought without irrigation:—Aloe, Cactaceæ in general, Mesembryanthemum, Iris, Maritime Squill, Cineraria maritima, Alyssum, Rosemary, Thyme, Wallflowers, Stocks, Carnations, Marguerite, Geranium, Pelargonium, Marigold, Arabis, Silene pendula, Primula (common and Chinese), Violets, Pansies, Nemophila; spring bulbs—Crocus, Snowdrop, Hyacinth, Ranunculus, Narcissus, Ixia, Sparaxis; Hepatica, Roses, Chrysanthemum, Salvias of many kinds, Lavender, Mignonette,

Fabriana imbricata, Justicia, Tobacco, red Valerian, Daphne, Spirea, Achillea, Veronica, Erica Mediterranea, Nasturtium, Habrothamnus elegans, Lantana, Abutilon, Datura Stramonium, Linum trigynum, Sparmannia Africana, Petunia, Cyclamen, Camellias, Azaleas, Calla Æthiopica, Richardia Æthiopica, Wigandia Carcassonna, Bignonias, Begonias, Cineraria, Verbena, Cytisus, Cistus, many species of Passion flowers, Chorozema, and many Australian winter flowering Mimosæ and Acaciæ. As stated, many of these plants can rest in the warm dry summer without being injured thereby. They are all, or nearly all, perennial in this climate. They start into life with the autumn rains, flowering more or less early in the winter or spring, and most of them continue in full bloom from Christmas to April, a month which, horticulturally, corresponds to June in England.

Most winters, in England, paragraphs appear in the newspapers, from residents in the more favoured regions of our island, giving lists of the flowers still blooming in their gardens. It may be remarked, however, that these lists never appear after Christmas, or the end of December at the latest. The fact is that in England November and December are generally rainy, and not very cold months; although the weather is very often damp, foggy, cold, unfavourable to human health, it does not actually freeze so as to destroy vegetable life. The hard frosts of winter generally commence about Christmas or the week after, and then the autumn flowers are all destroyed to the ground, and no such floricultural triumphs are possible.

On the Genoese Riviera, on the contrary, after Christmas, if there has been sufficient rain, vegetation takes a start and rapidly gains ground, under the influence, not so much of a higher night temperature (for we feel the January cold of continental Europe), but of the increasing

length of the day, of the ardent light and sun of an unclouded sky.

The increased length of the day is scarcely sufficiently estimated in calculating the effect of temperature on vegetation. I was much struck by its action in England in the year 1867. The days were more than usually cold and rainy until August, and the thermometer at night often went down nearly to the freezing point, and yet vegetation progressed much as usual, each plant and flower coming to maturity at about the usual period. Evidently the increasing length of the day, and the decreasing length of the night, were favouring and advancing vegetation. Thus on the north shore of the Mediterranean, although in December and January the days are generally days of warm ardent sunshine, they are so short, say 9 or 10 hours only, compared to the cold nights of 14 or 15 hours, that vegetation receives a great check. During these months the generality of flowering plants, although there is no frost and no cutting north winds, remain rather stationary, with some brilliant exceptions.

Most of the above-mentioned plants have been long tried in the gardens of this part of the world, and have been found adapted to the soil and climate. They survive the summer heat and drought, and require merely common care, with artificial irrigation in autumn, if the autumn rains fail, as they occasionally do, in order to thrive and flower in the open air. I must, however, except Camellias, Azaleas, and Gardenias, which absolutely require an artificial soil and summer irrigation. Chestnut leaf-mould is used instead of peat, which is unattainable in this dry, sunburnt region. I commenced my gardening with the already well-known plants, and soon secured flowers for every winter month in sufficient abundance to deceive the eye and to make winter look like summer, both in the

open garden and in the drawing-room. Now, I am trying to cultivate some of the flowers belonging to the lower latitudes of the southern hemisphere of Australia and South America, which bloom naturally in the winter, and which we cultivate in winter conservatories. I am persuaded that the winter heat is sufficient in this region to flower many of them in the open air. Thus, I have planted in the open air, in an artificial prepared soil, Chorozemas and Kennedyas, Ixias and Sparaxis, which have passed through the winter in good health, and have flowered freely. I applied at the same time for Epacrises and Cape Heaths to a leading house at Marseilles, but they had none, and could not find them for me. Nor do I discover them in the various catalogues from Marseilles and Hyères that I have received. Yet I think they would do in such a climate, which must be very similar to that of the Cape of Good Hope. I am told, however, that the summer heat is too great, that they get through the winter very well, but wither and die in summer. I have recently sent some nice plants from England, which have done well the first winter, so shall be able to judge myself how far this statement is correct. If they could be persuaded to flower in winter in the open air, it would indeed be an inestimable addition to the winter garden.

A friend, who has a garden in the south of France, has made a cave in a hill side, and therein keeps his winter flowering plants all summer, to protect them from light and heat, as the Paris gardeners do their summer plants to preserve them from winter frosts. I am thinking of adopting this plan with the plants that can with difficulty bear the ardent summer sunshine of Mentone.

On arriving at my Riviera garden about the 22nd of October, I am able to form a pretty correct idea of the manner in which the plants have stood the influence of the scorching

heat of summer. Six months of blazing sunshine, which so heats the ground that if the peasants touch it barefoot the soles of their feet are burnt, without clouds or rain, barring a very exceptional shower of half-an-hour's duration, are calculated to test the idiosyncrasy or peculiar constitution of any plants. The sheltered situation of the garden is peculiarly trying, for it is in an angle of the limestone rock, south-east and west, and exposed to the full power of the sun all day long. My gardener rather quaintly tells me that in midsummer it is a furnace—"*C'est comme l'enfer, monsieur.*"

The plants that stand this sun heat and drought the best without any irrigation, are the plants which are natives of the country, and which in it find their natural habitat, the conditions most favourable to their existence, such as Thyme, Rosemary, Cineraria maritima, sweet Alyssum, Lavatera, Iris, Scilla maritima, Juniper; also the Cactaceæ in general, the Aloe, the Mesembryanthemum. They still, after all this roasting, look perfectly well and flourishing. All these plants have very long fibrous roots, which insinuate themselves into the crevices of the rocks all but any distance in the search for moisture, and probably find it. In this respect, however, the Geranium and the Pelargonium appear to rival them. It is positively marvellous how well they bear the heat and drought; they thrive in the rockiest, warmest, driest part of the garden, and at the end of the summer, when even Aloes are drooping for want of moisture, they are all right; they have merely lost the greater part of their leaves, and are ready to start into full luxuriance as soon as they are watered. My gardener tried an experiment one summer. He had several large Aloes, well established, and planted in the warmest regions, in a foot or two of soil, in corners of the rocks. He left them

MY ITALIAN GARDEN (LEISURE HOURS)

entirely without water all summer, as also Geraniums and Pelargoniums in the same locality. When autumn arrived the Aloes appeared to have nearly succumbed, for their thick leaves fell flaccid, and appeared partly withered, whilst the Geraniums and Pelargoniums, also left to themselves, were all right and flourishing, beating their companions by a long way. I must add that when the Aloes were watered they soon filled up their leaves, pricked up their heads, and in a couple of weeks were as healthy and as good-looking as any in the garden. No doubt this is the way they meet such trials and misfortunes in their own country. The Geranium flowers all winter sparsely, and profusely by March. The choicest Pelargoniums become large bushes, and flower sparsely in March, and profusely in April, in the open, in sunny, sheltered spots. From this may be drawn the moral, that in our own country they may be planted in the driest places and safely left to nature.

The Aloe, Squill, and Iris may be put in the same category. They seem to care nothing at all for sun roasting and scorching. The large bulb of the Squill, the root of the Iris, may be pulled up and left in the blazing sun for weeks, and yet once planted and watered they will start and grow as if nothing had happened. Another feature connected with them is that they are what my gardener calls "*des mange tout*," that is, they take complete possession of the soil around, and starve out everything else. If planted in little, or indeed in all but no soil, they thrive and do well, but attain no great size. If, however, they are planted in a border with a good depth of the lime soil of the country, they start into vigorous, determined growth, throw out strong roots in all directions, and smother all other vegetation. The Aloe especially seems determined to have the border all to

himself. He sends out roots ten, fifteen, or more feet long, and at the end of these roots appear new plants, which if left to themselves would soon vie with their parent in hungry desperation. We have been obliged to take up the Aloes, the Irises, and the Squills, which we had placed as edgings, and put them on the top of a wide wall. Many of the Aloes we have put "in prison," as Antoine, the gardener says—that is, we have built small nooks and corner terraces for them against the rock, and have put them there by themselves, as in a penitentiary, where they can do no harm to anything else. I have left one large fellow in ten feet of soil to do as he likes, and it is a pleasure to see the vigorous manner in which he is growing. He has at least doubled his size within the three years that he has occupied his present site.

The endurance of heat shown by the Squill (Scilla maritima) is not surprising, for I found it in the dryest parts of Algeria, and was told that it penetrated into the desert of Sahara, and was all but the last plant to give in.

The same remark, but in a minor degree, may be made with regard to all the other plants that are natives of the country. The Cineraria maritima, planted in a border with plenty of soil, instead of being, as usual here, a small shrub growing out of the crevices of the rocks, becomes in a year or two a huge bush, as does the Lavatera, a very pretty mountain Mallow. We get good plants of Cineraria maritima by pulling them out of the crevices of the lime-stone rocks after heavy rains, which have reached the roots and loosened them. I dare not say where, according to Antoine, these roots go to, but they certainly go a long way, for they sometimes come out several feet in length. The Thyme and Rosemary also grow with wild luxuriance when planted as an edging to the borders, so as even to astonish the natives of the country. The Thyme, as a

dwarf dense shrub, so covered with flower in early spring, that the leaves can scarcely be seen, is really beautiful. As I sit writing these lines in a Fern grotto or summer-house overlooking the sea and the Mentone amphitheatre, the Thyme bushes scent the air, and are covered with real wild "Ligurian bees."

Different species of Mesembryanthemum also grow without care or irrigation in the warmest regions, hanging down the sunburnt walls and rocks in huge verdant festoons, like rivers of verdure. They require however a good supply of earth for their roots on the other side of the wall. They begin to flower in March, and are in full flower by the beginning or middle of April. The scarlet variety is more especially grand when covered with thousands of flowers, which make the wall, or rock, or bank, one glowing mass of scarlet. There is a flower at the axil of every fleshy leaf.

All sorts of Cactaceæ flourish in the same vigorous manner, except that they can live, like the Aloe, on an infinitesimal supply of earth; they appear only to want something to hold on by. I presume that a large proportion of the species of this family would survive here in the open air, and I have recently imported a collection of three hundred different species from a well known Parisian grower. They are all destined to be planted out, and I feel confident that most will survive. The Opuntia, or Prickly-pear, soon becomes a grotesque kind of tree on the Riviera, as in Corsica, Sicily, Southern Italy, and Africa; but it is not much cultivated on the Ligurian coast.

Roses—Hybrids, Teas, Bengals, Multiflores, Banksias, Centifolias, begin their spring flowering in March, and flower as freely in April and May, as they do with us in June and July. If not allowed to exhaust themselves, kept at rest during the hot months, and watered from September,

the Hybrids and Teas make a new growth, and flower freely again in autumn, October, November, and December, sparsely throughout the winter in warm sheltered situations. In such localities the Bengals and monthlies flower freely, the Teas sparsely all winter, so that there are always Roses for the bouquet even in midwinter, grown in the open air.

Chrysanthemums I find in full glory on my arrival in October. They continue flowering until Christmas. There is one large white species, of a trailing habit, which is perfectly beautiful: it covers the ground with lovely white flowers, and looks like a bridal bouquet. Very soon appears the Linum trigynum, which thrives and flowers like a Gooseberry bush. The soil and climate must be just what it requires, for it grows readily from cuttings without care, forms vigorous plants without manure, and bears myriads of handsome yellow flowers, which continue until March, by which time every branch and twig is covered with seed-pods.

One of the winter-flowering plants which does the best, and flowers the most freely, is the Habrothamnus elegans. It grows as a bush some ten or fifteen feet high, is in flower by autumn, and bears myriads of flowers all winter.

The Ageratum also flowers all winter freely, in the driest and rockiest parts of the garden. It grows to a good-sized bush, and is one mass of bloom.

The singular Bonapartea juncea is hardy in the Riviera. There has been a very large and beautiful one in the Monaco gardens for several years, which when it flowered threw up a flower-stalk at least twelve feet high, like an Aloe. A small one, received from Marseilles, and planted out in the garden, has survived two winters, and is now in perfect health.

The Heliotrope likes the lime soil and the sunny dry

weather, for it grows and thrives like a blackberry-bush, flowering profusely all through the winter in sheltered sunny situations. As it does not die down, but becomes a large ligneous shrub, and bears its sweet-scented ever-renewed flowers on every twig, it is an important feature of the winter garden at Mentone. Its healthy luxuriance in January and February is also a good test of the mildness of the climate, and of its immunity from frost. In the shade and in exposed situations it does not die, but vegetates and flowers sparsely only during the winter.

Lantanas also flower very freely during the autumn and winter, becoming large ligneous shrubs—nearly trees, indeed. They seem to require little or no care, and grow well in dry, rocky, sunburnt situations, bearing the summer heat and aridity uninjured.

Bougainvillea spectabilis is generally considered, I believe, to require rather a high temperature. I have had, however, several plants growing in the open for the last two years; they are now perfectly healthy, and will probably soon flower. I was led to plant them out owing to the following circumstances:—In the garden of M. Thuret, the well-known botanist at Antibes, which is more exposed and colder than Mentone, I found on April 22, the south-eastern façade of the house completely covered with a magnificent Bougainvillea spectabilis in full flower. It was truly a splendid sight, for the entire front of the house was one blaze with the flowers and rose-coloured bracts of this lovely climber. On my return to my country residence at Weybridge I was surprised to find a Bougainvillea four years old in full flower for the first time, half filling a hothouse. In this house, which had always been heated until that very winter, the Bougainvillea, planted in peat and leaf-mould in a border formed by bricking up an angle, had thriven but never flowered; owing to altera-

tions it had been kept cool, the frost merely having been kept out of the house. My gardener, who had lived for many years in a leading horticultural establishment, told me that he had always known the Bougainvillea treated by heat, and was surprised to see it flower so very freely under cool treatment. This result, however, coincided with what I had witnessed at M. Thuret's at Antibes. I may add, that I have also since seen it flowering profusely inside and outside a small glass-house at Alphonse Karr's garden at Nice, and at the Jardin d'Essai, Algiers, on an outside wall. In the same house at Weybridge we have flowered for years in succession other plants, Bignonia jasminoides, and Rhynchospermum jasminoides, usually, I am told, treated with heat.

The sweet Alyssum is a native of this country, and grows luxuriantly in the crevices of the lime rocks on the side of the roads everywhere, indeed flowering freely all winter. Like the other natives, if furnished with plenty of soil it becomes quite bushy, and is then one mass of white flowers.

Quite a feature in Riviera gardening is that many flowers which with us are annuals and die down in the autumn, are here perennials and attain a considerable size. Thus Petunias survive the winter, and speedily become large bushes, which are covered with flowers early in March. By the end of that month they are quite gorgeous. Carnations also do not suffer from the winter, and become large bushes if taken care of; they flower sparsely during winter in the sun, but not in the shade. Pinks bloom, but not until April, Ten-week Stocks and Wallflowers become large permanent bushes, and are really splendid in March, the Stocks especially are quite dazzling with the profusion of their flowers.

The Narcissus and Tulip seem to like the lime soil, and

grow wild in profusion on some of the cultivated terraces, so much so as to be a nuisance to the agriculturists. The Narcissus begins to flower in January, the Tulip not until the end of February. Hyacinths are found wild, but not abundantly; they thrive well in the soil of the country. Those which I have brought from England flowered in pots, and, subsequently planted out, have since bloomed in the open garden as brilliantly as the first year. I presume the climate is very much like that of their native country. Indeed they do better in the lime soil of this region, slightly manured, than when planted in Chestnut mould. In the latter they grow too rankly, as if the soil were too rich for them.

Primroses and Hepaticas are found wild abundantly on the shady side of a deep watercourse through a sandstone valley, usually called the Primrose valley. I have placed them in a light artificial soil, where they flourish, as do Cyclamen persicum, Crocuses, and Snowdrops, the latter brought from England. Ranunculi do very well even in the lime soil, but better still in a light artificial mould. They flower by the end of February, and are very lovely.

Camellias and Azaleas, and, in general, all plants with very small, delicate roots, do not succeed in the lime soil, which seems too stiff and hot for them. In the absence of peat, which is difficult to obtain in the south of Europe, it is usual to plant them in Chestnut earth, mould formed by the decay of the Chestnut leaves in Chestnut tree forests. But at Mentone even this earth is difficult to obtain, and very expensive, for it has to be fetched by mules from some twenty miles or more in the mountains. However, I scooped out all the earth from a small slightly-shaded terrace down to the rock, and filled it with an artificial soil, formed of two-thirds Chestnut earth, one-third sand, and a little powdered charcoal. In

this border I planted Camellias and Azaleas two or three years ago. They have done very well, without any protection winter or summer, and the Camellias have flowered freely each winter from Christmas to April; the Azaleas do not bloom until April. I therefore consider the question solved as to the adaptability of the climate to the cultivation of Camellias in the open, provided a proper soil be supplied. As yet they have not been grown in this district. I shall, however, be obliged in future to cover the Camellias with canvas during the March rains, as they damage both flowers and buds.

Chestnut earth being very expensive, costing about half-a-crown for a small sack, I have tried to form light borders by mixing one-third of the lime soil of the country with one-third of rotten stable manure, and one of sand. This makes a very light, rich compost. In it I planted Australian plants, Chorozemas, Correas, and Kennedyas (ovata, lilacina, and alba). They have all stood the winter and flowered freely,—the Chorozemas and Correas the end of February, the Kennedyas by Christmas. The latter prove a great acquisition as winter flowering climbers. They bloom very freely all through January and February, the pretty lilac-like flower lasting for weeks, and appear to like the soil I have made for them.

The Cape Jasmine or Gardenia, planted out in this artificial soil, grows luxuriantly, and is covered with well-formed buds, which blossom at the end of May and beginning of June. As, however, that is too late for my purpose, I have taken it up and planted it in the same soil in a conservatory recently built, and hope thus to secure its flowering before my departure, which takes place at the end of April. The gardener tells me that the flowers are very beautiful, but that their odour is very bad, actually poisoning the garden. This view of the case

is a good illustration of the indifference, nay, positive dislike, of many southerners to the odours which we prize the most.

The glass-house to which I allude was built by a Marseilles firm a year or two ago, to enable me to avoid, in some measure, the chilling effects of the long, cool, not to say cold, nights of December and January. I find it already a perfect success; it gives stillness of atmosphere, protection from wind, and an increased temperature by day and night without artificial heat. By shutting up an hour or two before sunset a much higher temperature is attained than exists out-of-doors. As the night progresses, it cools to within a few degrees of the outer temperature, so that there is only 4° or 5° difference between the night minimum outside and inside, but the duration of this colder temperature must be very short, from the much greater activity of vegetation inside the house. I believe it is the first glass-house that has been built between Nice and Genoa, and as such may be considered one of the first waves of horticultural progress in this direction; I hope it will be the forerunner of many more.

I must not forget to say a few words about the Salvias, many species of which flower and flourish throughout the winter. The two most valuable, however, are the Salvia cardinalis, or imperialis as it is called here, and the Salvia splendens. The former grows luxuriantly as a large ligneous bush, from five to eight feet high, and is covered with a profusion of terminal crimson flowers. It begins to flower early in December, and continues to present a gorgeous mass of bloom for a couple of months. The Salvia splendens grows and flowers with the same luxuriance, beginning to blossom about Christmas, and continuing to form dazzling masses of scarlet flowers all winter. It really is perfectly splendid, and deserving of

its name, especially when in close proximity to a large bush of the Marguerite. This latter shrub assumes a large size, and by the middle of February, in the sun, is covered with thousands of Daisy-like flowers, which look like a sheet of white. These plants, with the Nasturtium, occupy here a prominent place in winter gardening from the luxuriance of their bloom. The Nasturtium flowers freely all winter in the sun, and becomes a ligneous perennial climber.

The African Date Palm (Phœnix dactylifera) grows luxuriantly all along the Riviera or undercliff of the north shore of the Mediterranean, from Hyères to Genoa. Everywhere along this coast may be found isolated specimens of this Palm, as tall as in the African desert, and many centuries old. At Bordighera, fifteen miles east of Mentone, where it is cultivated for the sale of its leaves in Italy on Palm Sunday, there are forests of this beautiful tree. It produces Dates in abundance, but they do not become sufficiently saccharine to be fit to eat. It is raised easily from seeds; indeed, Date stones casually thrown out of the window have grown spontaneously in the garden of the house where I live at Mentone.

Impressed with the idea that in a climate where the Date Palm flourishes so well other hardy Palms might succeed, I sent to Marseilles for some marked half hardy in the catalogue of the Marseilles nurserymen, Messrs. Desponds, and planted them out. I succeeded in getting several through the winter, although others died. The Chamærops humilis proves to be perfectly hardy, which was sure to be the case, as it succeeds where the winter climate is much more severe than on this coast. Thus it grows freely and abundantly in sandy, uncultivated localities in the south of Spain—in Andalusia especially—as freely indeed as Gorse on our commons.

The Chamærops Palmetto and excelsa also survived the winter in perfect health, as likewise Latania Borbonica, Cocos oleracea, Phœnix farinosa, and Sabal Adansonii. On the other hand, I lost Chamærops stauracantha, Oreodoxa Sancona, Seaforthia elegans, Trithrinax mauritiæfolius, and Rhapis flabelliformis. I believe, however, that I did not give these plants a fair trial. They came to me from a Palm-house at Marseilles, and were at once planted out in November. Perhaps they would have survived had the transition been less sudden. What makes me think so is that some plants of Linum trigynum which, as I have stated, is perfectly hardy here, flowering profusely nearly all winter, received from Marseilles at the same time, no doubt from a house, languished and perished. Moreover, the Palms were planted in the lime soil of the country, and more extended experience of the Palm tribe in Algeria and Spain has led me to conclude that to give them a fair chance the soil in which they are planted should be either mainly or partly siliceous. Certainly, whenever I have seen the Palm growing luxuriantly in masses, the soil has been of this character.

Several of these Palms survived all the early part of the winter, to die in spring, when I thought they were safe, although the night temperature was no lower than before. From the 1st of November to the 31st of March—that is, during the five winter months—the thermometer that winter was only fourteen times below 40°, and only once as low as 35°. During the remainder of the five months the night minimum varied between 40° and 50°. Probably as the winter progressed the earth became colder and colder, and as the plants were small and their roots only a few inches below the surface, this may have killed them. Larger, deeper planted specimens might possibly have lived under the same meteorological conditions; or

had they been planted in spring, and had the summer to establish themselves, their fate might have been different.

Several of the Palms which I received in November—Corypha australis and Cycas revoluta—were planted in *jardinières*, and kept in a south drawing-room, in a day temperature of from 62° to 66°, and night temperature of 56° to 60°. They remained perfectly healthy all winter, and on repotting them in the spring I found their roots quite fresh and sound. Palms are much used in this way in Paris in summer for house decoration. They are very ornamental in rooms, and very hardy, bearing the dryness of the atmosphere of inhabited houses with apparent immunity; indeed, it is sufficient to visit the Palm-houses on the Continent in spring to be convinced of their hardihood. I may mention, as a case in point, the Palm-house of the Botanic Garden at Montpelier, which I visited at the end of April. I found it perfectly crammed with Palms of all sorts, small and large, which had scarcely standing room, and yet they all appeared to be healthy and doing well after a long winter's confinement in a half-lighted lean-to building. In summer most are put out in the garden.

Wishing to ascertain, by personal observation, what light horticulture throws on the climate of other protected regions of the north shores of the Mediterranean, more to the west, I this spring (1869) made a horticultural excursion from Mentone to Marseilles, starting April the 10th.

At Nice I examined the gardens of Count Margaria, M. Gastaux, and Baron Vigier. In all I found, as in my own, the ordinary spring flowers, Salvias, Iberis sempervirens, Silene, Hyacinth, Narcissus, Ranunculus, Virginian Stock, going off, Roses coming on.

Count Margaria's garden is more especially remarkable for his cultivation of the Camellia in the open air. He has scores of large Camellia trees, from ten to fifteen or twenty

feet high, such as are seen on the shores of Lake Como, all looking perfectly healthy, and covered with thousands of flowers. The Count told me that he has been cultivating Camellias for many years at Nice, and had obtained most of his trees from Como. They had given him great trouble. He had tried various artificial soils, the calcareous soil of Nice not suiting Camellias or fine-rooted plants in general. He had planted them in soils composed of charcoal, decomposed manure, and sand, and in chestnut leaf-mould, the usual soil selected in the south of Europe, but had never been satisfied with the results obtained until he imported soil from the neighbourhood of Lake Como, which he had done at a great expense. This soil is a rich loamy peat, more compact than the peat of the north of Europe, apparently containing a considerable amount of ordinary leaf-mould. It is more suited to the dry air and scorching sun of the Riviera and Nice climate than ordinary peat. It is the soil in which the Camellia grows to be a tree twenty feet high or more, and shows such surprising luxuriance, on the shores of Lake Como. At first, said the Count, conforming to the usual idea on this subject, he planted the Camellias in the shade, but recollecting that the Como Camellias are planted in the open in a blazing sun, quite as warm as that of Nice, he boldly threw aside all attempts at shading, removed or cut down all protection, leaving them in the full blaze of the sun, and that with decided advantage. I myself recollect being much surprised to see the large tree Camellias at Lake Como in full sunshine, for wherever I have been, before or since, I have always found half shade inculcated as a precept in their cultivation. I would remark that these large tree Camellias, covered with thousands of flowers, beautiful as they are, have one great disadvantage when compared with smaller plants. As the

blossoms come into flower in succession, not all at once, many must be fading. These faded flowers do not fall off for some time, and spoil the look of the tree unless taken off with the hand. This the gardener does in a conservatory, but it becomes impossible when the tree is covered with myriads of flowers. Thus, although it sounds very grand to hear of Camellias covered with thousands of blossoms, such trees in reality do not look as well when in flower as smaller, more manageable plants. The principal sorts cultivated were the Iride, alba plena, variegata plena, Anemonæflora, incarnata, althæiflora plena, Henri Fabre, Rival Rouge, pulcherrima, Printemps, and Grand Monarque Rouge.

In addition to the plants which I have described as flourishing throughout the winter in my garden in the open air, without protection, I found at Count Margaria's perfectly healthy specimens of the following plants:— Dasylirion robustum, juncifolium, longifolium, gracile, glaucum, strictum, Alsophila excelsa, Ficus repens, Beaucarnea recurvata, Agnostus sinuatus, Grevillea alpestris, Chamærops excelsa, Bambusa Fortunei, Zamia villosa, horrida, Phormium tenax, Bignonia Recvesiana, Philodendron pertusum.

The garden of Baron Vigier, which rises by a gentle slope from the sea, looks full south-west, and is thoroughly sheltered from the north-east by the mountain of Villefranche. It contains many remarkable specimens of some of the above mentioned plants, growing luxuriantly in the open air, as also many others, amongst which I would name Yucca pendula, quadricolor, draconis; Dracæna Draco, guatemalensis; Greigia sphacelata; Ficus Chauveri, Porteana; Brahea dulcis; Dion edule, Chamærops Ghiesbreghtii, tomentosa; Aralia dactylifolia, Araucaria excelsa, glauca robusta; Melaleuca ericifolia.

The garden of M. Gastaux contains many of the above plants, but is more especially remarkable for the magnificent specimens of the Musa Ensete and of the Araucaria which it contains. They grow alone or in groups on the lawn, and are all noble plants. The Araucarias (excelsa), two in number, have rapidly grown in a few years to an elevation of twenty-five or thirty feet, and are perfectly splendid trees; their foliage glossy and bright, and each whorl of branches succeeding the other with mathematical precision. The soil and climate must suit them thoroughly. The former is a red calcareous earth, mixed with loam. The Musa Ensete might also be in its native Abyssinia; in three or four years the plants have risen to a height of above twenty feet, and constitute one mass of wide graceful leaves, not drooping as in the common edible Banana, or torn by the wind, as are always the leaves of the latter when planted in the open air, but intact and erect, folding gracefully one over the other.

M. Gastaux's garden is one of the curiosities of Nice. It occupies a large area a little above the sea-level, and has been brought into thorough cultivation. Various avenues have been formed of Eucalyptus globulus, Schinus mollis, Magnolia grandiflora, and they are all growing with amazing vigour; the two former have become large trees in the course of three, four, or five years. The Eucalyptus, more especially, is being planted extensively all over this part of the Mediterranean shore, as also in Corsica and Algeria. The summer warmth, the mildness of the winters, and the dryness of the atmosphere appear to reproduce its native Australian climate, so that it grows with all its natural vigour. As the wood is hard and good—fit for building and ship purposes, notwithstanding its very rapid growth—it is likely to prove a very valuable acquisition to the arboriculture of the south of Europe.

On leaving Nice, I went over to Golf Juan, a few miles from Cannes, to see the gardens of M. Narbonnard, a well-known horticulturist in that region, who supplies most of the Cannes gardens. I found him fully alive to the capabilities of the soil, sun, and climate of this part of the north shore of the Mediterranean. He told me that the failures of most amateurs to raise Palms, Dracænas, Dasylirions, Yuccas, which would really grow and flourish in this region in the open air, were owing, as in my own case, to the specimens planted being received direct from hothouses. In his establishment the plants raised from seeds in heat, and kept under cover for a year or two, were put out-of-doors gradually, kept entirely without protection for a couple of years, and then only given to his customers. In that way he said he could rely on their standing, with care, the slight cold of the southern winter. He showed me a large collection of plants usually considered too delicate for outdoor cultivation, even in the south of Europe, which he could warrant to stand the winter cold between Toulon and Pisa. In nearly all this region the thermometer goes down to the freezing point, or to a degree or two above or below, several times in the winter. Among these were—Phœnix pumila, leonensis, reclinata; Cocos campestris, flexuosa, australis; Jubæa spectabilis, Seaforthia elegans, Corypha australis, Dion edule, Zamia horrida, Cycas revoluta, Chamærops elegans, Dracæna cordylina, Yucca aloifolia, gloriosa; Casuarina tenuissima, stricta. He had a collection of healthy Araucaria excelsa, from two to three feet high, which he valued at from 2*l*. to 4*l*. each.

The next day (April 12) I was at Cannes, and went carefully over the garden of the Duke of Valombrosa, which is very sheltered from the north on a slope all but due south. I found vegetation quite as advanced as at Mentone, Nice,

and Golf Juan. The Mesembryanthema flowed down the bank sides like rivers of purple and lilac. The Banksian and multiflora Roses were in full bloom, other Roses beginning to open, as also Spiræa, Cytisus, Fabiana imbricata, and Erica arborea. There were in the open, in a state of perfect health, large specimens of Cycas revoluta, Dion edule, Chamærops reclinata, Phœnix leonensis, Araucaria Bidwillii, Aralia Sieboldi, Musa Ensete, Dasyliriou longissimum, Yucca tricolor, Alsophila australis, Rhopala Corcovadensis, Dracæna indivisa. Indeed, the impression produced upon me by the careful examination of this beautiful and well-kept garden is, that although some regions of the Genoese Riviera, or Mediterranean undercliff, such as Monaco, Mentone, and St. Remo, may be much more sheltered from disagreeable winds than Cannes, and much less exposed to night frosts, the amount of sun-heat received there, in favoured spots, must be nearly as great as in any other of these regions. I may say the same of Hyères, which I visited two years ago, a little later (April 22). I found vegetation nearly, if not quite as advanced as at Nice or Cannes. Although more troubled with the *mistral*, or north-west wind, which is the pestilence of the South of France or Provence, it must share in the general protection which pertains to the coast regions sheltered by the Maritime Alps and by the Apennines, as proved by its vegetation.

From Cannes I proceeded to Marseilles, and, besides visiting the public gardens, went over, carefully, the beautiful grounds and hothouses of M. Scaramoneya, an eminent Greek merchant, whose gardening establishment, I was told by horticulturists, is one of the best and most complete in the vicinity of Marseilles. I was much struck (April 13) with the extreme difference between the vegetation of this garden and that of the protected coast line

which I had just left. The recent presence, and the habitual presence of winter, was evident everywhere. Although in the same latitude, the want of protection from the north showed itself in the complete absence of nearly all southern vegetation such as I have described. No Lemon or Orange-trees, no Palms, no Dracænas, no Dasylirions, only the most hardy Yuccas. Even the spring flowers were backward, and Geraniums planted out recently in sheltered, sunny situations, had their leaves singed by frost. Deciduous trees scarcely showed any evidence of life, and there were many other evidences of recent severe weather. The gardener, a very intelligent man, was fully aware of the cause of this state of things. Marseilles has no real protection from the north winds, lying as it does at the bottom of the funnel down which the Rhone descends to the sea. Thus, in winter, the thermometer often goes down from 10° to 15° below the freezing point, whilst in summer, owing to its southern altitude, it is burnt up by the scorching heat reflected from the limestone mountains that surround it. Even in summer I was told that the thermometer occasionally descends below the freezing point at night. On the other hand, the south-west wind often blows from the sea so strongly as to bend and break trees and shrubs, or to despoil them of nearly all their foliage. The month of March this year had been unusually severe and boisterous, and many shrubs that had stood their ground for years had been killed. In the conservatories and hothouses, however, I found all the southern plants cultivated in the open in my garden at Mentone, and in those at Cannes, Nice, and Hyères. These plants were all most luxuriant, and clearly required much less attention and heat than in similar houses in the north.

The horticultural knowledge acquired on the Riviera

has in its turn been of use to me in England, and some of my readers, gardening on hot sandy soil, may be interested to know how this knowledge has been applied.

I have a suburban retreat at Weybridge, in Surrey, on the margin of a fir-covered, heather-clad forest. The flower garden is small, only extending over about an acre and a half of siliceous sand. The site was chosen as favourable to the health of man, for it is a well known fact that the worse a locality is for the cultivation of plants, the drier, the sandier it is, the better it is adapted for human health and human longevity. The converse is equally true. A deep, moist, rich soil, calculated to support rank fertility, such as is found in valleys, on the banks of rivers, is not one that the learned in medicine would choose for a convalescent hospital, such as the admirable institution on Walton Common, a mile or two from me.

I became the owner of this sandy elysium about twelve years ago. Up to that time I had been absolutely a townsman, my life having been entirely passed in great cities, Paris and London. What I knew of botany and horticulture was merely what townsmen get out of botanical gardens, herbaria, and occasional holiday glimpses of the country, their "Arcadia." I entrusted the laying out of my bit of common to a "skilful" landscape gardener, recommended by a friend, and myself remained passive, mindful of the proverb "*Ne sutor.*"

The future garden, formed of siliceous sand, containing a very scanty allowance of vegetable soil, rested on an iron pan a few inches from the surface some three inches thick, and as hard as the foot pavement in Pall Mall. It was sparsely covered with Heather, Gorse, and Broom. All this was removed, and the ground "picturesquely" laid out by carting the soil from the centre, and forming irregular sloping beds all round, in front of the drawing-room

windows, and at the angles. I paid for deep trenching of the entire surface, and for the destruction of the iron pan, but I was not there to superintend the works, and it was only partially done, as I learnt to my sorrow many years afterwards. Then on these beds of sand, raised on the unbroken iron pan, were planted above 70*l.* worth of Conifers, evergreens, and shrubs—the garden, it must be recollected, not being more than an acre and a half.

The battle for life, initiated under such conditions, was attended with the result that might have been anticipated in a sunny, hot, dry situation, and in a sandy soil. At the end of two years, but few of the rarer shrubs were left. Rhododendrons, Portugal Laurels, Hemlock Spruces, Spruce Firs, Taxodium sempervirens, Hollies, a few Deodars, and Abies Douglasii, with Laburnum, Ash, and Birch, were pretty nearly all that remained, and they were anything but vigorous in growth and size. Then followed years of imperfect garden development.

My gardening experience has thus been gained on two different soils, the one calcareous the other siliceous, both presenting very little vegetable soil. It has led me, in all humility, to question a doctrine recently broached by one of our greatest botanical authorities, viz., the adaptability of all plants to all soils. In the battle of life those having natural affinities to particular soils seem to me to gain the day. Of course in rich alluvial soils, mere leaf-mould, all plants thrive. But a large portion of the earth's surface is covered with lime or sand, and not with alluvial soil.

During these years had it not been for what was done under glass, I should have derived but little pleasure from the garden. However, thanks to the knowledge recently acquired in the south, which thoroughly applies to a dry sunburnt English garden, an era of improvement has begun.

On digging down to the roots of the trees and of the

shrubs, to see why they did not thrive as they ought to have done, I found everywhere at different depths the iron pan I fondly imagined totally destroyed. This was broken up, removed wherever it could be got at, and replaced by the best soil obtainable in the neighbourhood. I also levelled most of the raised beds. In reality, it is perfectly ridiculous to make raised sloping beds in a dry sandy, sunburnt soil. Nearly all the rain falls off in summer as from a glazed surface, or from the roof of a house. It is still worse to raise such sand beds when they lie on an unbroken iron pan. The only plants that had penetrated this iron pan were young oaks, and this fact is a good illustration of the immense strength and power of the tap-root thrown out by the acorn. Where the beds were not levelled, split lengths of Firs about a foot in diameter have been imbedded some four inches at the margin of the raised beds, and filled in with good loam, thus arresting the rain, and preventing it running off the border. Plants thrive wonderfully behind these split Firs, whichgive a picturesque finis h to the beds, with flowering plants, such as Petunias, Verbenas, trailing over.

A hungry, meagre soil, such as I describe, which unassisted grows annuals only a few inches high, being really incapable alone of doing justice to gardening efforts, a great quantity of good loam and manure was mixed with it. Then, instead of depending chiefly on annuals, which in dry seasons in such soils are soon burnt up and perish, a large stock of the plants that I find do the best in the dry climate of the Riviera is prepared and planted everywhere: Sweet Alyssum, Pelargoniums, Petunias, and Marguerites. They are planted out and never watered after the first week or two, even during long periods of drought; yet, as anticipated, they do not flag in the least, and soon became one blaze of bloom. Centaurea candi-

dissima and gymnocarpa also do very well with little or no watering. A margin of Alyssum or Centaurea, with a thickly-planted border of Petunias or Geraniums, and later in the season a background of Dahlias, look remarkably well. Geraniums do not grow much in size in such dry soils, but they flower freely in the hottest and driest weather. Amongst foliage plants I find Iresine Herbstii a failure during drought without water, but it pushes up with the autumn rains, and looks very handsome. On the other hand, Amaranthus ruber does very well during long continued drought, as does the Perilla. Well manured, the soil suits admirably Gladioli.

I find also that, imitating the south, much more ornamental use may be made of Aloes, Cactaceæ, and hardy Palms, both for garden and house decoration, than is usual. They require but little heat protection in winter, and do well in summer anywhere—indoors or out. Palms require a deal of water when growing in warm weather, but Aloes and Cactaceæ demand so little that they really give no trouble at all. The Aloes too reproduce themselves very freely by offshoots.

In conclusion, I may say, that the horticultural facts contained in this chapter corroborate the researches previously made in other regions of the south of Europe, and prove conclusively that thorough protection from north winds has an extreme influence on climate and vegetation, an influence which it requires many degrees of latitude to compensate.

This fact applies to England as well as to the south of Europe. In building our houses and making our gardens, we do not think enough of protection from the north. With its assistance our climate may be rendered much less trying both to the human and to the vegetable constitution, as is proved by Hastings, Ventnor, and Torquay, the chief merit of which is protection from the north.

CHAPTER VI.

THE MEDITERRANEAN.

TIDES—COLOUR—FISHES—BIRDS—THE ST. LOUIS ROCKS.

Βῆ δ' ἀχέων (μη) παρὰ θῖνα πολυφλοίσβοιο θαλάσσης.

HOMER'S *Iliad.*

"There shrinks no ebb in that tideless sea,
Which changeless rolls eternally;
So that wildest of waves, in their angriest mood,
Scarce break on the bounds of the land for a rood;
And the powerless moon beholds them flow,
Heedless if she come or go.
Calm on high, in main or bay,
On their course she hath no sway.
The rock unworn its base doth bare,
And looks o'er the surf, but it comes not there;
And the fringe of the foam may be seen below,
On the line that it left long ages ago:
A smooth short space of yellow sand
Between it and the greener land."

BYRON'S *Siege of Corinth.*

THE ordinary notion of the Mediterranean is that of a blue and tranquil ocean lake. At Mentone, during the winter, this poetical view of the great inland sea is often strangely falsified. Sometimes, for weeks together, it is constantly angry, quite realizing the experience of "pious Æneas" in days gone by. For it then is indeed "troubled and perfidious," ever breaking in angry billows on the shingly beach.

To those who are familiarized with the varying forms of our old ocean, ever advancing, ever retreating, this seething, all but tideless sea, which day and night beats the shore with impotent rage, never advancing, never re-

treating, is at first tedious in the extreme. Gradually, however, the eye, the ear, the mind, become accustomed to its monotonous anger, and open to its real magnificence. Then, indeed, it is a glorious privilege to live, as nearly all do at Mentone, in front of the boundless liquid Mediterranean plain—at one time heaving restlessly, at another, in a calmer mood, covered with myriads of facets on which the sparkling sunshine dances and glitters. The daily rising of the sun, also, in the east, out of the waters, colouring the skies and the waves with hues which surpass those of the rainbow, is a magnificent sight, that never palls.

To a reflective mind, the Mediterranean is the most interesting of all seas, of all waters. Its shores are hallowed by association with the entire history of human civilization. It may be said to have been the cradle of the human race and intellect. When the rest of the world was a blank, a mystery, every region of its circumference was known and inhabited by the nations whom we may consider the fathers of history. The Jews, the Phœnicians, the Egyptians, the Greeks, the Carthaginians, the Romans, all lived on its shores, navigated its waters, and developed their life as nations within sight of it. In early, half-fabulous days, it carried the fair Helen from her Grecian home to Troy, and then brought her ill-used husband, and the kings and chieftains of Greece, to the walls of her doomed asylum. Later, it witnessed the rise and progress of Christianity, was the scene of the voyages, the shipwrecks, and the trials of the apostles. It carried the crusaders on its bosom to fight for the Cross, and bore back the remnant of their marvellous armaments to their northern homes. In modern times, too, the Mediterranean has been the road to the East, the battle-field of the world, the connecting link between Europe, Asia, and Africa.

We have authentic records of the climate and meteorology of the Mediterranean in the writings of the ancient

Greeks and Romans, such as Pausanias and Vitruvius, extending to above two thousand years. Both climate and meteorology appear to have been then what they are now, and the Mediterranean was navigated, by those who inhabited its coasts, pretty much as it is navigated in our own days, in a cautious land and shelter-loving manner. Then, as now, the winter was a stormy time, and the danger of navigating with sails a sea in which there is so much uncertainty as to the direction of the wind, and such frequent collisions between north and south, was so impressed on the minds of mariners, that all long voyages were abandoned. Merchant vessels were pulled on shore, and remained "in port," free from the dangers of the deep, from the beginning of October until the beginning of April. Marine insurances were known at Athens even in those times; but navigation in the six forbidden months was considered so dangerous that no insurances were taken, and the interval was specially set apart for deciding litigation in maritime cases, as a time when all the parties concerned were sure to be at home.

Mariners in those days hugged the shore, and at the slightest unfavourable change ran into the nearest port, or took shelter under the nearest headland; and this, notwithstanding all the modern improvements in navigation, they do even now. With a slight breeze, the sea, near the land, is studded with vessels, their white lateen sails extended, like swallows skimming over the waters of the deep; but if a stiff wind and a heavy sea rise, they instantly seek shelter, and disappear. Then, for days together, not a sail is seen, until fine weather returning, again lures them out of their retreats.

The vessels now employed in the coasting trade are probably much the same, in size and form, as those used by the old Greeks. They are, generally speaking, from

about twenty to fifty tons burden, seldom larger. This is no doubt owing to the circumstance that most of the smaller ports are ineffectually protected from the wind and the sea, so that they have to be pulled up on the beach for safety. This is done by means of windlasses, and with the assistance of the entire maritime population. They are thus unloaded and loaded on dry land, when they are again dragged and pushed down the beach into the sea, by main force.

In the port at Mentone, at Ventimiglia, and all along the coast, scores of these small vessels may be seen, high and dry on the beach, waiting for cargo or fair weather. So it was that the Greeks pulled up their vessels on the shores of Troy, after landing, and it was when thus drawn up that they were fired and destroyed by their leader.

Although poetically called tideless, the expanse of water that forms the Mediterranean obeys the same laws as the great ocean. Like the ocean, it feels the vicinity of our cold satellite the moon, and rises and falls, at stated hours, under its influence. The body of water, however, is so much smaller than that of the ocean, notwithstanding the depth of the Mediterranean, that the moon's attraction produces a comparatively trifling effect. There are also other and more recondite causes which contribute to make the Mediterranean all but tideless.

The height of the tidal wave varies considerably in different regions of this great inland sea, ranging from a few lines to a foot or more. On one occasion, when at Naples, at the Hôtel des Etrangers, an invalid, I used to amuse myself by watching the sea, as it broke against the sea-wall beneath the windows. During a calm, which lasted more than a week, I observed that a rock crowned with sea-weed, immediately in front, was daily covered and uncovered twice by an evident tide.

Whenever the wind blows on or off the shore, it raises or lowers the sea-level, all over the Mediterranean, several feet. This makes it all the more difficult to recognise the existence of the tidal wave. At Mentone, when the wind has been blowing several days from the south-east or south-west, the sea reaches nearly to the road in the eastern bay. When, on the contrary, it has been blowing several days from shore, not only the shingle, but a line of sandy beach is often uncovered.

The style of navigation adopted by the Mediterranean sailors, may, and does, render them expert boatmen, but it is said, also, to make them less fit for lengthened navigation than their more adventurous northern brethren. The navigation of an inland sea cannot, certainly, rear such a race of hardy sailors as is produced by the navigation of the wide Atlantic and Pacific Oceans, and by the pursuit of the great fisheries, amidst the storms and icebergs of the Northern seas. No wonder the sailors of Columbus, accustomed to never lose sight of land for more than a few days, should have trembled when they had been weeks out at sea, and should have feared they were sailing into an unfathomable abyss, from which there was no return.

When the sea is breaking furiously on the beach, as it does during a great part of the winter, there is but little marine life visible. The sea-level being ever the same, owing to the absence of perceptible tides, there are no exploring walks on the sands at low tide, as on our coasts, no searching after zoophytes and fuci. On calm days, however, a walk to the extreme end of the Cap Martin introduces the amateur naturalist to pools lying between jagged rocks, where there is much to be observed. There are also other points along the eastern coast where similar pools may be found, containing various kinds of sea weed, sea anemones, hermit crabs, inhabiting pretty shells which

they have dragged from deeper water, and other marine treasures; only to be discovered, however, on days of perfect calm.

The Mediterranean is a deep sea, and its depth is very great on this coast near the shore. According to Lyell, Saussure found a depth of two thousand feet a few yards from the land at Nice, and from Toulon to Genoa the sea is everywhere very deep near the shore. This is always the case in the Mediterranean, and elsewhere, whenever mountains terminate abruptly in or near the sea, as along the Riviera. The abysses of the sea are probably at least as deep as the mountains in their vicinity are high; and as at Mentone the higher mountain range reaches the sea line, there are no doubt alpine valleys many thousand feet deep within a very short distance of the shore—a grand idea!

Thus is explained the absence of deltas at the mouths of the large torrents which descend from the mountains, and fall into the sea in the Mentonian amphitheatre. For countless ages these torrents have been rolling, during the winter rains, great masses of boulders into the sea, and yet no impression has been produced on the outline of the two bays, which remains perfect. No doubt these boulders, which form the shingly beach, soon fall into these all but unfathomable depths, just as stones rolled down a house-top would fall into the space below. The same remark applies, in part, to the Paillon at Nice. Thus, at the bottom of these marine valleys are now forming, no doubt, beds of conglomerate, similar in character to the one on which the village of Roccabruna is perched.

The Mediterranean may truly be considered a deep sea, for, in a great portion of its extent, its depth varies from five to ten thousand feet, or between one and two miles—a fact which has been ascertained in laying the telegraph cables, which cross it in various directions. Yet, even this depth

is trifling, compared with that of the Atlantic, between Europe and Africa, and America. The latter, in some parts, has been ascertained, by sounding, to be thirty thousand feet, or six miles deep.

Formerly deep-sea sounding was effected by means of a lead or weight fastened to a line, and thrown out from the ship. By this plan, however, it was found difficult, if not impossible, to reach a depth much above six hundred fathoms, or between three and four thousand feet. If the lead was heavy, it could not be hauled back, and the line broke; if it was light, it was floated away by currents. The impossibility of hauling in a heavy weight, once it has reached deep water, will be easily understood, when it is known that at a depth of fourteen thousand four hundred feet the pressure of the water is as three tons on every square inch of surface. To this must be added the weight of the whole line used for deep-sea soundings, which would itself, at that depth, amount to one ton (Ansted). The difficulty has, however, been overcome by an invention which we owe to Captain Brookes, of America. He introduced a weight so contrived, that on touching the bottom it separates from the line, which can then be hauled up, but only by steam power when the depth is very great, Thanks to this contrivance, and to the use of steam power, the greater part of the Atlantic has been surveyed, and has been found to be a deep valley, lying between Europe, Africa, and America, and dipping deeper below the sea-level than the highest mountain rises above the surface of the globe.

Although the Mediterranean is only separated from the Atlantic by the peninsula of Spain, the elevated and mountainous character of that country, and the other conditions I have elsewhere enumerated, prevent a large proportion of the storms that occur in the western Atlantic

reaching it. Thus M. Matteuci has recently published a paper, in which he shows that out of 118 storms coming from the Atlantic and striking England and Ireland, 49 only reached Italy. In October, November, and December the progress of these storms to Italy is much more frequent than at other periods; while in winter, and still more in summer, a great diminution occurs. In the three months named, out of 29 storms 23 reached Italy; in April, May, June, July, and August, out of 41 only 3 arrived at Italy. These facts substantiate my own observations as to the frequency of south-westerly storms in autumn.

The Mediterranean is a warm sea. At all times of the year it is five or six degrees warmer than the Atlantic Ocean under the same latitude; and in winter it is never cooled down to the same extent as the latter in northern and even temperate regions. In the open oceans there are, deep below the surface, cold currents from the north and south pole, which have been revealed by the deep-sea soundings of Lieut. Maury and others. Thus, in the Atlantic Ocean,—at the bottom of the Gulf Stream, a temperature of only 35° Fah. has been found, whilst the surface was above 80°. The Mediterranean, a land-enclosed sea, is not accessible to these polar currents, which is one of the causes no doubt of its exceptional warmth. Even in winter, I have never found it lower than 54° on the Mentone coast in deep water.

There seems to have been little if any change in the temperature of the Mediterranean and of its shores within the memory of man. The same vegetation exists and flourishes around it that existed and flourished when the earliest records were penned, those of Sacred Writ and of Homer. The geological features do not either appear to have changed within that period, except as

regards slight elevations and depressions of some coasts. Thus, the climate has probably been the same during the historic period. It has been characterized in former historic days, as now, by sunshine, by little rain, and by an atmosphere which does not contain one-half of the moisture of the English atmosphere. Indeed, its climate has no doubt been what it is now ever since the continents of Asia, Africa, and Europe have assumed their present shape, ever since the existence of the rainless tract, of which the deserts of Sahara, of Arabia, and of Cobi are the expression.

Owing to the paucity of rain, and to the small number of large rivers that empty into the Mediterranean, the supply of fresh water to that sea is much below the amount taken up by evaporation. To meet this deficiency a wide stream or current of sea-water, many hundred feet deep, sets in through the Straits of Gibraltar from the Atlantic. This inward current was formerly supposed to be owing to a difference of level, the Mediterranean, in this hypothesis, being lower than the Atlantic. The researches of Admiral Smyth, and of other observers, have proved this view to be fallacious. The Atlantic, the Mediterranean, the Black Sea, the Adriatic, and even the Red Sea, have all the same level.

Admiral Smyth doubts the existence of a deep counter-current from the Mediterranean to the Atlantic through the Straits of Gibraltar, but Lieut. Maury considers it proved. Were such a counter-current not to exist, he says, the waters of the Mediterranean would not only be slightly salter than those of the Atlantic, as they actually are, but would become very much salter, like those of the Dead Sea, which has no outlet, and would deposit salt at the bottom from over-saturation. This is not the case, which proves, he states, that there *must* be a deep counter

and outer current of water, of a denser gravity—from increased saturation with salt—than the upper and inward Atlantic current. This he shows to be actually the case from other data.

One of the most conclusive of his arguments is drawn from the history of a merchant vessel which went down, heavily laden, in deep water inside the Straits of Gibraltar, and was found some weeks after, outside the Straits, stranded on the Atlantic coast, many miles distant. As there is a strong current always running into the Mediterranean where the vessel went down, it could only have been taken far to the westward and thrown up by a submarine current going in a contrary direction to the permanent superficial one.

Thus is the equilibrium established between the Mediterranean and the outer ocean, and thus is the saltness of the Mediterranean kept within very nearly the ordinary limits, notwithstanding the deficient supply of fresh water from rain and river sources.

The exceptional warmth of the Mediterranean exercises, as we have seen, an influence on the climate, which it modifies favourably. It also exercises a remarkable influence on the finny tribes that inhabit it.

As Lieut. Maury states, the cold oceans and seas are those in which fish, especially good edible fish, thrive the most, and are the most prolific. The cod, the mackerel, the herring, the sole, the salmon, all belong to northern latitudes. Fish are abundant and good on the north coast of America, east and west, and on the north coast of Europe. The shoals of herrings, mackerel, pilchards, cod, that visit our seas every year, all come from the north, and return to it. Between the Gulf Stream, as it ascends the Atlantic from the Gulf of Florida, along the coast of the United States, there is a band or wedge of water,

descending from the north, which is many degrees colder than the ascending waters of the Gulf Stream itself. This band of cold water is full of good edible fish, whereas the warmer waters of the Gulf Stream contain comparatively few fish, and those not good. In the tropics, and in warmer seas also, the fish are neither so good nor so numerous, although more brilliant and fantastic in colour and shape. The Mediterranean is no exception to this rule, as I can testify from personal experience. The fish it contains is in general neither good nor abundant, which accounts for the Roman Catholic inhabitants of its shores consuming so large a quantity of the product of the herring and cod fisheries of Northern Europe.

At Mentone the great depth of the sea at a short distance from the shore is no doubt an additional drawback, as very deep waters are neither favourable to the breeding of fish, nor are they good fishing-grounds. Our best fishing-grounds are all shoal sandbanks, as for instance the Dogger Bank, and that of Newfoundland.

On a fine day, when the sea is calm, the Mentone fishermen are on the alert betimes, and the bay is studded with boats. A very close-meshed bag net is thrown out and buoyed, and then dragged in shore by long ropes, with great excitement on the part of those engaged. There are often ten or twelve men, women, and children to each net. When at last, however, it is drawn in, and its contents are scattered on the beach, these efforts recall the fable of the mountain in labour. There is seldom anything in the bag but a few pounds' weight of a small transparent whitebait kind of fish, a few sardines and small red mullets, some diminutive sword-fish, and two or three crabs the size of a five-shilling piece, that have not been able to get out of the way.

When the nets are drawn, and their living contents

are strewn on the shore, the young, and I may say not unfrequently the old, are seized with an ardent desire to save some of the struggling inmates of the deep, or in other words to establish an aquarium. Basins, tubs, all kinds of utensils are enlisted in their behalf, but I am sorry to add with but very little success. The small flat fish, mullets, sword-fish, the shrimps, after darting about furiously for some hours, vainly endeavouring to escape from their prison, turn on their side and die. They really appear to die from nervous exhaustion, for it cannot be for want of aerated water, as the same result is observed when either a large or small vessel is used. I find that Mr. Philip Gosse, the charming naturalist, also takes this view of the early death of marine animals thus suddenly confined. He strikingly remarks, "It is as if a man, shut up beneath the dome of St. Paul's, should be found dead by daylight for want of air to breathe. Are the gills of an anneloid or a mollusc more exacting than the lungs of a man?"

The small-meshed nets must be very destructive to young fish; and as they are everywhere used on the Mediterranean coast, they must tend to render its waters even more unproductive than Nature intended. The fishermen on these shores maintain, as did our own fishermen with reference to whitebait, that the small transparent fish they catch in such numbers are a separate species that never grow any larger, and which it is, consequently, legitimate to destroy for food. To settle this question, I brought some home, preserved in spirits of wine, and gave them to the well-known ichthyologist, Dr. A. Günther of the British Museum. After careful examination, Dr. Günther wrote me as follows:—"There can be no doubt that the specimens you have submitted to me for examination are the young fry of some species

of *Clupea*, and from the position of the vertebral fins, and the number of vertebræ, I believe them to be the young of *Clupea Sprattus*, or a species closely allied to it." Dr. Günther has satisfactorily established that our whitebait are the young fry of the herring, so that both on our shores and on the Mediterranean the wholesale destruction of these small fish is equally unjustifiable.

The French Government, which has paid great attention, during the last few years, to pisciculture, to the replenishment both of its salt and fresh waters with fish, has become alive to this fact. A commission has recently been appointed to inquire into the condition of the fisheries on the northern shore of the Mediterranean, with a view to their improvement; and the probable result of its labours will be a prohibition of the use of these small-meshed nets—a very necessary step. They unquestionably tend to destroy the fisheries wherever used, by annihilating the small fry on the shallows. Unless some such measure is adopted, fish must all but disappear from this part of the Mediterranean shores, stimulated as their destruction is by the presence of wealthy fish-eating strangers. A few years ago the small fry were sold at Mentone for four sous (twopence) a pound; the larger for eight sous (fourpence). Now the small fetch twenty, and the larger thirty sous.

Wherever I have been, in Corsica, in Italy, in Sicily, I have always found the local fishermen, and many better informed persons, to pertinaciously maintain that these small fish are not the spawn of larger fish, but a peculiar species that always remains small, and that were these nets not allowed a valuable kind of food would be lost to all classes of society. We have seen that such is not the case, and it is to be hoped that their destruction will be legally prevented.

The gentle art is cultivated at Mentone by many zealous native piscatorians, who may be seen day after day fishing from the parapet of the quay at the entrance of the town, from rocks lying in the sea, or from the shore. Some of the visitors also, inspired by their example, occasionally enter the lists. Their patience and skill, however, meet with but a poor reward, as might be anticipated from what has been stated. Their principal recompence appears to be the lazy enjoyment of the harmonies of nature so dear to all who love "the contemplative man's recreation." The melody of the waves breaking at our feet, the surging of the blue waters over the seaweed covering the submarine rocks, the varied hues that the fuci assume, as they are alternately expanded, buoyed up by the coming wave, and then left high and dry as it retreats, the effects of the ever-varying cloud, shadow, and sunlight on the sea, the rocks, the mountains, and the horizon, are never better observed, or more thoroughly appreciated, than by the unsuccessful angler. Very little piscatorial success satisfies the true lover of nature, and such nearly all enthusiastic piscatorians are. This love of nature is, I believe, the key to their oft-abused pastime. In the educated it is felt and analysed, in the uneducated it exists as an instinct, a sensation, but is not analysed.

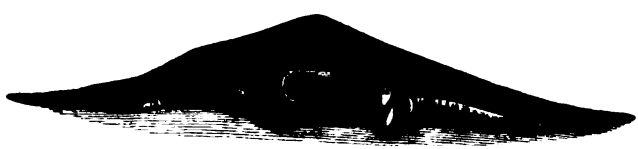
Cuttle-fish are abundant in these waters, and are eaten by the inhabitants as a delicacy. They are occasionally found of enormous size. I have seen a monster, at least six feet in length, with villanous-looking tentacula several feet long. Such antagonists would be very formidable even to a strong swimmer, if they attacked him. They could easily surround him with their suckers, and perhaps pull him under water; but I have not heard of any such accident. Monstrous cuttle-fish, with shells twelve feet

in circumference, characterized the warm seas of the chalk period and of the epoch in which the nummulites of the St. Louis rocks existed. Even now, in tropical seas, there are cuttle-fish of enormous size. Well authenticated tales are told of tentacula as thick as a man's arm, thrown by cuttle-fish like those of yore over the sides of a boat in these regions, and dragging seamen overboard. These "strange fish" have long ago died out in the Mediterranean, but probably those I have seen are their lineal but degenerate descendants. The small and beautiful nautilus is still alive, although it, too, lived in these remote days along with its awful companion.

The fishing for cuttle-fish is quite one of the features of the place. The boat is rowed gently along the shallow parts of the bay, where the rocks are covered with seaweed. In the prow sits the fisherman, holding a long stick, to which is tied a piece of meat as bait, partially covered with a few green twigs. This perch is poked among the seaweed, under the rocks and stones, in likely places. If the cuttle-fish is there he makes a clutch at the bait, and clings to it with such extreme tenacity that he is easily hauled into the boat. At night fishing is often carried on by means of a fire lighted in a kind of metal basket suspended over the prow of the boat. The fisherman uses a two or three pronged lance. He leans over the side of the boat and explores the bottom of the sea, by the glare of the fire, as the boat glides gently along. If a fish is seen many feet under the water the trident is thrown with all but unerring accuracy, and the fish is brought up wriggling on its teeth. This night-fishing has a picturesque effect as seen from the shore.

There is an interesting fact connected with the Mediterranean that is but little known, even by the scientific world. This sea is the favourite habitation, the home, of

one of the largest and most singular fish that inhabit the wilderness of waters, the devil-fish. The devil-fish is a species of monstrous hideous ray or flounder, flat, broad, of enormous dimensions, and of extraordinary muscular power, with a huge mouth and stomach, all one, in the front of its misshapen head. It inhabits the tropical seas, the broad Atlantic, as well as the Mediterranean, and is everywhere an object of curiosity and awe, when seen or caught, which it very rarely is. The African traveller, Le Vaillant, caught one twenty-five feet long in the body, and thirty feet wide in the fins, on one of his journeys to Africa. Other travellers have seen them floundering on the surface of the sea, apparently as large as the vessel



THE DEVIL FISH.

they were in. Two were caught at Villefranche, near Nice, in 1807, in one of the tunny nets, and have been minutely described by Risso, the learned Nice naturalist, under the name of "Cephaloptera Massena." The one first caught, a female, weighed 1328 pounds; it moaned piteously. The male was seen, for two days, to hover round the nets where she was taken, searching for its mate, and then was taken in the same net! The poor loving devil-fish were thus united in death. The male was smaller, weighing 885 pounds only.

The Mediterranean fishermen are acquainted with the devil-fish traditionally, calling it *vacca*. They believe that its appearance is an omen, and portends disaster. A small species is not uncommon in the West Indies, and

is sometimes pursued, but rarely taken, in Kingston harbour, Jamaica, according to the Hon. R. Hill, who has published a very interesting account of this curious fish (*Intellectual Observer*, October, 1862). The drawing given is copied from this article. When one of these fish is observed floating on the water, the mode of attack is to harpoon it. The monster immediately strikes out for the sea, with amazing velocity and power, towing its enemy along with it. Other boats attach themselves to the first, and they are all towed out, generally for several miles, before it again rises. Indeed, they are frequently obliged to abandon the chase altogether.

Often, when, steeped in the southern winter sunshine, I lie in my favourite leisure haunt, among the St. Louis rocks, gazing at the Mediterranean, in one of its calm, placid moments, I think of these monsters and repeat to myself the harmonious verses of Mrs. Hemans:

> "What hidest thou in thy treasure-caves and cells,
> Thou ever-sounding and mysterious sea."

Perhaps at that very moment some of these monstrous antediluvian fish are disporting themselves in the deep waters at my feet; for it is not in the very deepest regions that even the largest fish can and do live. In the great depths of the sea, so marvellously reached of late, there is no motion, very little if any light, and no life, or only the most rudimentary kind of life. The sound brings up microscopic shells undamaged in their delicate structure by friction. They have fallen there through the water, and there they remain motionless. The dead sailor, who is thrown over the side of the vessel, with a cannon-shot attached to his feet, descends to these depths, there probably to remain, standing erect, preserved by the pressure of the water, until the Day of Judgment.

As spring advances some of the fish, which then descend

in such enormous shoals from the Northern seas into the Atlantic; find their way into the Mediterranean, through the Straits of Gibraltar, and are very welcome. Thus, mackerel and whiting are caught in great numbers, and a large and much valued fish, the tunny, appears.

"The tunny or *thynnus* is a fish which belongs to the genus mackerel, *scomber*, which it resembles in form. It grows to more than seven feet in length, and then often weighs as much as four hundred weight."

After passing the Straits in dense masses, the tunny skirts the coasts of Spain, France, and Italy, to spawn in the Black Sea. It visits the smallest bays and coves, which renders its capture feasible—indeed, easy. Large and strong nets are fastened by cables and anchors, at the entrance of the bay where they are expected, and a sentinel is posted on some eminence to watch for their advent. When they are seen approaching along the coast, the fishermen get ready, and as soon as the fish have entered, they close the nets around or behind them. The poor fish are then slaughtered with lance and knife, the sea being reddened with their blood. As we have stated, their flesh, although not very delicate, is still much appreciated by southerners.

The tunny reach Mentone in early spring, and about the middle of April may be seen in the eastern bay of Cap Martin, the preparations being made for their advent. These preparations are on rather a small scale, and consist merely of three or four boats, a long net in the water, and the look-out, perched on a kind of platform raised some thirty feet high on the shore.

In some parts of the coast of Italy and Sicily large nets, called madrigues, half a mile or a mile long, are used in fishing for the tunny. These nets, which are divided into chambers by cross nets, are sunk in deep

water, at some distance from the shore. The tunnies, which follow the coast in a shoal, pass between it and the net, and on reaching the extremity of the latter are arrested in their progress by a cross net. They then turn, and are driven into the chambers of the large net by the fishermen, where they are destroyed, as described, by hundreds, in favourable years. The sport is stated to be very exciting; but, unfortunately, it takes place in May and June, so that health visitors have taken flight to the north before it is in operation.

The tunny is not only allied to the mackerel, but also to the bonito, a beautiful tropical fish of a lovely blue colour. The bonito, although a tropical fish, is represented in the Mediterranean by a distinct and equally beautiful species, the *Pelamys Sarda*, the length of which is from twenty to thirty inches.

Whales not unfrequently pass into the Mediterranean through the Straits of Gibraltar, for a stately promenade or "swim." On one of my excursions to Corsica, we met one when out of sight of land. The steamer passed very near him, and he indulged us with a splendid spout. The French sailors called the whale "un souffleur" (a blower), and he well deserved the term.

Porpoises are numerous, and as amusing in their gambols, leaps, and unwieldy gyrations, as in the northern seas. They constantly come in shore. On one occasion we met with a shoal out at sea, evidently on frolic intent; they were apparently pursuing each other, like boys at leap-frog. Regardless of our presence, they kept springing out of the water, with a kind of flying leap. Sometimes half a dozen would be in the air at a time, all in a line. They passed our bows, and then were soon out of sight, as our courses diverged.

If, on a calm fine day, a height of some hundred feet or

more is attained above the shore, and the surface of the sea is carefully examined, it will be seen to present ribbons, as it were, of water of different colours, lighter and darker. These ribbons describe all kinds of irregular liquid paths and sinuosities in the bay, and for a mile or two from the shore. They are varying marine currents, the cause of which it is difficult to determine. Inequalities of surface at the bottom, differences of temperature, winds, all no doubt contribute to produce them. They illustrate on the surface of a calm sea the deeper and more powerful currents which play so important a part in the history of the great ocean.

These currents are the preserve, the delight of the marine naturalist, a fact but little known. I was introduced to them by Professor Pagenstecher, of Heidelberg, a well-known and enthusiastic naturalist, who came to Mentone two springs purposely to study its marine zoology. It seems that the currents draw into their course all the vegetable or animal detritus floating at the surface of the sea where they pass. The presence of these "elements of nutrition" attracts animalculæ and the smaller inhabitants of the deep. They, in turn, attract the larger molluscs, and thus these currents become a kind of naturalists' cover, where the inhabitants of marine depths inaccessible to dredging are found in abundance.

The best time for this kind of fishing is early in the morning, at sunrise. The boat should start from the shore just as the sun appears on the eastern horizon, so that the current or fishing ground, previously determined on, is gained as the sun's rays illuminate the depths of the sea—

> "And now the purple clouds
> Rise like a mountain; now the sun looks out,
> Filling, o'erflowing with his glorious light
> The noble amphitheatre of hills."—ROGERS.

All animated nature becomes endued with fresh life, an universal desire for food is felt, and the briny paths are soon crowded with voracious customers.

The fishing is carried on by means of two nets, like butterfly nets, only larger, fastened to stout sticks. One is of good size, and stout texture, the other smaller, and of more delicate material. They are held out, four-fifths immersed in the water, from the side of the boat, the concavity turned in the direction the boat is going, and of course catch everything in their way. There should also be several jars of sea-water in the boat, ready for use. Every now and then the smaller and more delicate net should be taken in, the water allowed to escape from the bag end, and then the bag itself turned inside out into one of the glass jars of sea-water. Although the eye may detect nothing on looking at the water from above, if the jar is lifted up and the observer looks "through" it, he will generally see, by transmitted light, many very singular forms of marine life, which the net has caught disporting on the surface of the sea, but which are quite invisible to the eye from above. The same plan may be followed with the larger net, but it is more especially intended to catch the larger molluscs and zoophytes, which the eye distinctly perceives swimming or floating in the current. I was thus introduced by Professor Pagenstecher to many very singular and beautiful forms of life, and was highly delighted with this new mode of fishing. To him I owe the following notes of what he found:—

In these currents will be found a great number of small crustaceans called Copepodes, of a white, orange, or red colour, which seem to rest on their antennæ; Saphirines which, rising and falling, look like a precious stone or a drop of dew, and sparkle like a flower; marvellous larvæ, Asterias and Ursins, which with the friskiness of youth

are taking an excursion in deep waters, whilst the father and mother are concealed amongst the rocks in quiet bays; Radiolariæ, gelatinous balls like chains of frog's eggs, punctuated with blue and yellow, and presenting microscopic spikes of silex of most elegant shapes; small Pteropodes which, protected by a calcareous box, and supplied with two wings, swim about in the warm waters like flies and butterflies in the air. The glass jar into which the net is turned and washed is soon filled with these members of the microscopic world, and to a naturalist they give days of study, pleasure, and information.

When the larger net is used, a sharp eye must be cast on the waters near the boat, as it is only intended to catch the Molluscs and Zoophytes which are perceived swimming or floating in the current. The observer will probably soon discover chains of Salpa, either the gigantic form, Salpa Africana maxima, with its nucleus of a Sienna brown colour, or the more delicate species named "democratica maxima," coloured in ultramarine. Sometimes more than a hundred individuals are united in a chain several feet long. There is one singular genus in which the mother gives birth to one daughter very different from herself. This daughter in her turn produces hundreds of children united like the Siamese twins, but each like the grandmother. At first they are all united, and form chains and rings on the surface of the sea, but one after the other, as their turn to reproduce the race arrives, separates from the rest, and gives up the dances and pastimes of youth for the more serious duties of life.

Among the treasure trove will be, jelly fish belonging to the family of Gorgonides, which even in the jar try to catch some small fry, as likewise Ctenophores, especially the Beroe ovata, a real crystal cucumber, the Eucharis multicornis, which, rose or yellow tinged, seems as it

passes under the bark to be merely a reflection of the full moon, and is not much more solid; the girdle of Venus, which gliding serpent-like in the waves, is nearly invisible, although three feet in length. When seen, its edges present all the colours of the rainbow, owing to the vibration of ciliary hairs.

If the day is a favourable one, the "fisherman" will probably secure a Siphonophora, a swimming polymorphous colony, generally upheld by a small bladder full of air, provided with a column of bells wherewith to swim, and carrying below a crowd of polyps armed with urticant filaments, opening their mouths on all sides like a polycephal Hydra; the Praga cymbiformis; the Hippodius luteus; the Abyla pentagona; the Diphyes acuminata; the Farkalsa cystrima, but for the latter will be required the largest jar, which one colony will fill to the brim; the Phromima sedentaria, a crustacean which preserves its children carefully in a cradle of crystal taken from the very substance of some gelatinous animal; the large Firoles, called by the Mediterranean fishermen "olifante di mare;" lastly, the Cymbulia Perosisi, which conceals its soft body in a slipper of crystal, a slipper that recalls the one Cinderella wore. It is one of the most elegant objects imaginable, and for its sake alone the ladies at home who are anxiously waiting the return of the "foolish fishermen," will pardon the disturbance created by the departure before break of day.

Professor Pagenstecher was very successful, he told me, during the few weeks he spent with us, and returned to Heidelberg laden with numerous scientific treasures, and a very happy man.

I may remark that I have never known an unhappy, misanthropical naturalist. As a class, I think they are truly the happiest and most contented of men. Constant

communion with nature draws their thoughts from the cares, the anxieties, the heartaches, the passions of life, and thereby purifies and elevates their minds; whilst every advance in knowledge, every discovery made, increases the admiration, the reverence felt for the Divine Author of all things, who has so marvellously organized everything for the best.

All who sail on or live near the Mediterranean notice the peculiar blueness of its waters. This tinge would seem to imply that they contain more salt than the waters of the ocean. The more salt held in solution by water, the bluer it is; the less salt, the greener it is. Hence the light green hue of the Polar seas, which contain much more fresh water than those of the tropics. The latter are generally, from this cause, of a deep indigo, like the Mediterranean. The evaporation from the surface of the Mediterranean abstracts a much greater quantity of water than its rivers supply. Hence the strong current that sets in from the ocean at Gibraltar, and also, no doubt, the blue tinge of its saline waters.

The correctness of the above views has been questioned. I would, however, refer those who doubt to the first three paragraphs of Lieutenant Maury's very valuable work on "The Physical Geography of the Sea." It is, indeed, to this really fascinating book that I am indebted for the explanation I have given of the peculiar indigo-blue colour of the Mediterranean. It may be considered proved by facts derived from other regions of the world's waters, and by actual experiments.

The Gulf Stream, which comes from the tropics, from the Gulf of Mexico, where the heat is extreme and evaporation very great, is of a deep blue colour, like the Mediterranean. This colour is so different from that of the surrounding ocean that the line of demarcation is seen

with ease, and in calm weather half of the ship may be seen in the Gulf Stream and half out. Analysed by Dr. Thomassy, by means of a delicate instrument, the salt has been found to be 4 per cent. in the blue Gulf Stream, opposite Charleston; $4\frac{1}{10}$ per cent. in the blue trade-wind region; whereas it was only $3\frac{1}{2}$ per cent. in the greener waters of the Bay of Biscay. Again, in the salt-works on the shores of the Adriatic and of France, the vats or pools into which the sea-water is received for evaporation exemplify the fact. After standing some time in one pool, for the purpose of evaporation, the concentrated sea-water is passed into another, and so on. As it becomes more and more loaded with salt the colour gradually changes from light to deep blue, to indigo, and finally to a reddish tint when crystallization is about to commence. "The saltmakers judge of the richness of the sea-water in salt by its colour; the greener the hue the fresher the water."

The colour of the waters of glacier streams, of the Swiss lakes, or of the Rhine at Bâle, is quite a different hue to that of the Mediterranean. It is a kind of light bluish green, and is evidently owing to some other physical cause.

In describing the natural features of the Mentonian amphitheatre, I must not omit to mention, that its olive and pine woods are alive with feathered songsters. The notes of some are very musical, and those of others reproduce sounds familiarly heard in the summer in our own pine forests in England. The same cannot be said of the small green tree-frogs that scramble about on the branches of the Olive-trees, or of their larger brothers that live in or near the tanks. In winter they are, fortunately, silent; but as spring arrives, they commence every evening an endless chorus, which lasts until after daylight, much to the dismay and distress of those who live in their neigh-

bourhood. They certainly more than compensate for the nightingale, which arrives, as with us, early in May, and warbles all night long in every tree. The birds are mostly winter emigrants from the north, like ourselves in search of a southern sun. The olives and pine cones afford them abundant food.

On the sea, near the shore, are constantly seen troops of sea-gulls, attracted by the household refuse which the inhabitants are rather too prone to cast over the sea-wall into the salt water. When wind and storm are looming on the horizon they are more especially numerous, sometimes congregating in flocks of several hundred. They generally swim about on the waves near the shore, and look very picturesque when present in such numbers. Sea-gulls are interesting birds in more ways than one. When riding on the waters they have more than the usual grace and elegance of aquatic birds, and when soaring aloft, all but motionless, or describing eddying circles, the strength and smoothness of their flight, and their perfect self-possession, are pleasant to behold. Sea-gulls appear to soon become familiar with man in the pursuit of food, and a truly remarkable feature in their history is the pertinacity with which they follow vessels, especially steamers, for the sake of the offal thrown overboard. In the Mediterranean they lie in wait off the ports, and a chosen band starts with nearly every steamer, and follows it, fair weather or foul, to its destination. They have thus accompanied me on most of my longer Mediterranean excursions, such as from Corsica to Marseilles, from Messina to Marseilles. On the latter voyage a troop of eight joined us as we left the port of Messina, and were flying about us for three nights and two days, apparently ever on the wing. Whenever I was on deck they were there, not merely following the vessel, but

leisurely flying in circles half a mile in advance of us, or a mile or two behind. Bits of bread thrown into the sea brought them all to us in a few seconds. Their wonderfully acute sight at once detected the prize, when they would descend from a great height, like an arrow, and pounce on the smallest morsel floating in the foaming furrow traced by the vessel. The captain said that they knew the track of the Mediterranean steamers as well as the oldest pilots. I have been told that they follow in the same way the steamers from New York to Europe for ten days and more. They probably rest and sleep occasionally on the bosom of the sea, and afterwards overtake the ship by their rapid flight.

The swallows and martins, as I have stated, never abandon the sheltered ravines and sun-heated rocky mountains of the Pont St. Louis throughout the winter, finding sufficient insect life to maintain them. Although in an exceptionally warm and sheltered nook like the St. Louis rocks, they may thus remain, the general swallow population migrates from the Riviera as it does from more northern countries, crossing the Mediterranean to Africa. It is not really known where they finally go in mid-winter. Probably they keep moving south as winter advances. In Algeria they are not more stationary than in southern Europe, going south, into the desert when winter, cold, and rain sets in, unless it be in some exceptionally sheltered nook, such as the Gorge of Chiffa. There I was told that they remained all winter, as in the St. Louis rocks at Mentone, keeping company with the monkey, of which, however, we cannot boast. Some travellers speak of seeing them in Senegal in mid-winter, and Herodotus, twenty-three centuries ago, states that swallows are found throughout the year at the sources of the Nile. As he certainly had not visited the Nile head, a glory reserved

to our countrymen in recent days, he must have had the same hazy notion of what becomes of swallows in winter that we have.

The presence of the swallows attracts hawks and occasionally the majestic eagle from the adjoining Alpine regions. I have often lain, in mid-winter, for hours among the rocks at St. Louis, high above the blue vessel-dotted sea, with the wild Thyme, the Rosemary, and the Cneorum in full flower around me, watching their movements. As they gain confidence the swallows, in great numbers, resume their rapid flight in and out of the rocks, chasing the insects as on a fine English summer evening. Suddenly a noble hawk, occasionally a majestic Alpine eagle, appears, soaring aloft with wide-stretched pinions. The poor swallows, stricken with fear, instantly seek refuge, and in a few seconds disappear from the gaze of their ruthless pursuer. Sweeping from one rock to the other, he seems to enjoy the confusion and solitude he has created, and remains "the monarch of all he surveys."

My friend Mr. Traherne Moggridge (the author of the very beautiful work entitled "The Flora of Mentone), who has made the ornithology of Mentone a study, tells me that the rock Martin swallow does not visit England in the summer, although it ascends quite as far north, in an easterly direction. Like many other summer migrants from the south, it takes a north-easterly course. The rock Martin is the sole member of the swallow genus that winters in Europe, and that only in a few warm sheltered localities, such as Gibraltar, Mentone, and the coast of Greece. Mr. T. Moggridge says that he has noticed other birds of passage during the winter at Mentone, such as the black Redstart and the Willow Wren. In company with these birds, although of very different

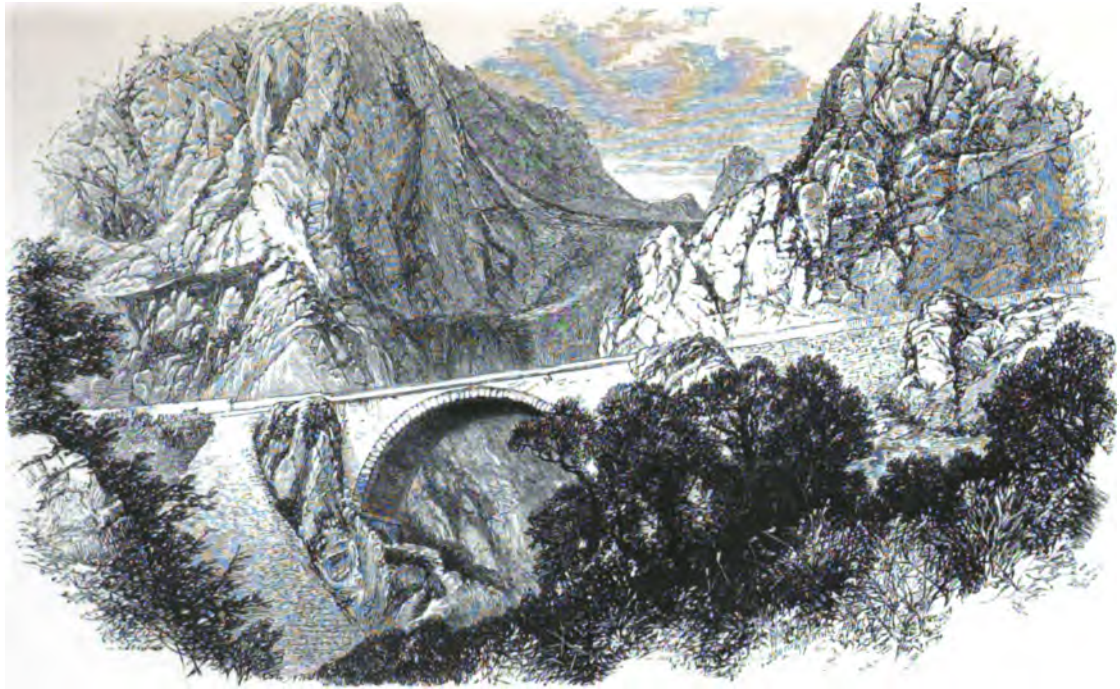
habits, he has observed the beautiful Rock Creeper (*Tichodroma saxatilis*), a relative of the Tree Creeper of our woods. Like this latter bird, it is rarely seen on the wing, but creeps up steep and apparently impracticable surfaces of rock, with a jerking motion and slight spasmodic expansion of the wing, dipping its long bill into the crevices of the rock as it ascends. The body is of a mouse grey, but the upper part of the nearly black wing is of a fine crimson colour, and there is a row of white spots on the quill feathers. The Pont St. Louis rocks are a favourite resort of this very interesting bird, but no doubt it may be seen on other points of the coast. Thus it has been noticed near the tunnels through the rocks on the road between Finale and Genoa; it is well known in Italy and Spain.

One of the ornaments of the flower garden in autumn, and a constant visitor to our rooms in winter, is the Humming Bird Hawk Moth (*Macroglossa stellatarum*). It is a large brown moth, with a mouse-like body and head, brilliant eyes, small wings, and a tongue an inch or two in length, usually curled up proboscis shape. It has the power to dart this tongue, with instantaneous rapidity, into the corolla of flowers, to rifle them of the nectar on which it feeds. When hovering over flowers, I am told that it thoroughly resembles the humming bird of tropical countries, whence its name. They are occasionally seen in warm summer weather in England. These moths are no doubt driven into the houses by the increasing cold of the nights. They are really pretty creatures, and I have often had several in the drawing-room for days together, hovering over cut flowers, darting their tongue in and out of the corollas, and feeding on their sweets.

The St. Louis rocks rise all but perpendicularly from the sea, on the eastern side of the eastern bay, the Genoa

road being blasted from their flanks. They present, near the shore, a deep, irregular, and picturesque cleft or ravine, formed by a watercourse which falls as a cascade from a considerable height. The road crosses this ravine by a bold and elegant bridge of one arch, which is now the frontier between France and Italy. Masses of rock, irregularly divided and worn by the convulsions of nature, and by the action of water and weather, form the boundaries of the ravine. They are partly naked, partly clothed with mountain plants, Lentiscus Bushes, Thyme, the Cneorum, Valerian, and Bluebell. These rocks are continuous with the ridge that ascends to the Berceau, one of the highest mountains of the Mentonian amphitheatre (3850 feet). A few hundred feet above and from the sea, the scene becomes very wild and grand. The mountain assumes the form of a fantastic mass of huge rocks and stones. In one region they form a species of stony torrent, arrested in its rapid descent, in another they are piled one over the other in every conceivable shape. It is the wildness and naked stony confusion of a mountain summit, within a few hundred feet of the sea-level.

On the eastern side of the St. Louis ravine, lying on the side of the mountain, seven hundred feet above the sea, is a very picturesque, grey looking village, Grimaldi by name. It is seen from the town and the eastern bay, warming itself in the sun, and is generally rendered conspicuous by patches of white which surround it. This is the linen of the inhabitants, lying on the mountain to dry. On the left side of the Genoa road, which winds above the shore blasted out of the solid limestone rocks, below the village, is an old ruined mediæval castellated tower, which formerly belonged to the Counts of Grimaldi; it was built either to protect the coast and the town from the attacks of the roving Moors and Saracens, or by the latter



THE ST. LOUIS BRIDGE AND ROCKS.

when they were masters of the country. It is known by the name of the Grimaldi tower, and it is from a small watch turret near it that is taken the very truthful view of the Mentone amphitheatre contained in the frontispiece. This is one of the most sheltered spots that can be found in the entire district, and the view from it is certainly one of the most complete and most lovely. It is here that I have established my winter garden. With a view to the cultivation of flowers and to the tranquil enjoyment of "invalid lazarone life" in hours of leisure, I have become the happy proprietor of the watch tower, of the smiling sunny terraces that adjoin it, and of part of the rocky mountain side.

At the bottom of the picturesque ravine, which is crossed by the bold St. Louis bridge, there is a copious water-course, that is made to irrigate and fertilize all the terraces to which it can be diverted. Indeed, as I have stated, the groves of Lemon trees which cover these terraces, owe their existence to the water thus obtained. In the lower part of the ravine there is an aqueduct on arches, which tradition says was built in the time of the Romans. Several hundred feet higher there is a small water canal, scooped out of the rock, which descends from the upper part of the ravine. As it is a short cut from the village of Grimaldi to Mentone the villagers constantly make use of it, although there is scarcely foot-room for one person, and the precipice is immediately at the side. In one part the aqueduct is so much in a hollow of the rock that there is scarcely room to pass upright. A tale is told of a young Grimaldi girl who all her life had blithely and fearlessly traversed this path. She got married, had a baby, and carried the cradle on her head, as is the custom of the peasants in this country. One day she took the familiar road, with the cradle in the usual position, forgot the rock

above, struck against it, and was dashed over the precipice with her child.

On the western side of the St. Louis ravine are the "warm terraces," as I have named them, the warmest region of Mentone. On the rocky mountain slope, the owners have scooped out and built a series of terraces, which have been entirely planted with flourishing Lemon-trees. They owe their existence entirely to the little streamlet which has been diverted from the ravine watercourse, and which irrigates the terraces, filling large tanks for summer use. Sheltered on every side except the south and south-west, saturated with sunshine from early morning to evening, the rock and soil never cool, and cold and frost are unknown, even on exceptional cold days. Thus they constitute a natural hotbed, where vegetation is always in advance, where winter is unknown, and where invalids may safely while away the day in the coldest weather.

The stranger wandering among the rocks above these terraces, may accidentally find a small black metal cross. This cross commemorates a painful catastrophe that occurred a few years ago. A sprightly English girl of ten, whose parents occupied the villa below, escaped with a younger sister from their governess, and, in light-hearted play, scrambled up the rocks. Having reached this wild region, the elder one climbed upon a peak to wave her handkerchief in recognition to a friend below. Unfortunately she lost her footing, fell head-foremost, and was killed on the spot. There was universal mourning for the sad fate of the fair English child on the part of the kind-hearted Mentonians, and even now the fearful accident is never mentioned without deep sympathy for the bereaved parents.

The beach underneath and beyond the St. Louis ravine is singularly beautiful. The red limestone, or "red rocks,"

as they are generally called, ascends perpendicularly to a great height, and the shore is merely formed of débris and advancing buttresses of the same formation, worked by the waves into the most jagged, irregular, and fantastic shapes. When there is a strong south-westerly gale blowing, the waves are thrown on these rocks with extreme force, and are broken into foam and spray, that rise, with a noise like thunder, to a great height. On one point there is a subterranean passage or tunnel, into which the sea is engulfed, to escape further on in the shape of a magnificent jet d'eau. The sight, in stormy weather, is truly magnificent. The Bone caves are at the base of the red rocks, above the coast line.

Along and on the shore rocks used to pass the road to Genoa, a mere mule track, as before stated. Remains of it still exist, and it constitutes one of the most picturesque and pleasant promenades. The view of Mentone and of its amphitheatre is very fine from this point. About half a mile beyond the torrent that descends from the St. Louis ravine, the path passes along the shore over a gully, by a bridge of one arch, so thin and light that it is crossed for the first time with some apprehension. It is said to be of Roman construction, and, small as it is, seems worthy of such an origin.

Some bold rocks which here rise out of the sea near the shore, and give the command of deep water, are the favourite haunt of anglers. I have tried my fortune, piscatorially, like others, but with very little success. Would not some plan of ground-baiting be likely to attract the finny tribe? The refuse which the townspeople throw into the sea, over the quay, at the entrance of the town, seems to have that effect; a fact which accounts for the habitual presence of native anglers. I leave this question, however, to those more learned than myself in the art. On these rocks is

found the "samphire," which is not confined to the dizzy heights of Dover. The region is also a favourite habitat for the Cinerea maritima, and for the elegant Lavatera.

A strong sea wall, and a broad foot causeway have been built along the shore of the eastern bay, from the town to the St. Louis rocks. Thus an admirable promenade, sheltered from the north-east, has been formed, most valuable to the invalids who inhabit the eastern bay.

I would, however, warn all real invalids never to lounge or sit on the sea-beach unless there be a dead calm. Generally speaking, when there is a perceptible sea-breeze, with rolling waves, it is dangerous. As previously explained, although this breeze apparently comes from the south, it is often in reality a north wind deflected landwards. As such it may produce a chill, and give rise to cold or sore-throat, or to even more serious mischief. I often feel inclined to stop the carriage and, philanthropically, to warn invalid strangers, whom I see sitting or lying on the beach in January or February, as if they were enjoying "*otium sine dignitate*" on our own shores in July or August. This leads me to remark that in our active, feverish modern civilization the old classic saying which I have quoted (awry) has ceased to be true. "Ease or leisure and dignity" no longer go together. Now, it must be ease without dignity, or dignity without ease. The two cannot be combined.

CHAPTER VII.

THE CLIMATE OF MENTONE AND OF THE RIVIERA CONSIDERED MEDICALLY.

"Whoever wishes to investigate medicine properly, should proceed thus: in the first place to consider the seasons of the year, and what effects each of them produces; for they are not all alike, but differ much from themselves in regard to their changes."

HIPPOCRATES (On Airs, Waters, and Places).

To appreciate the medical characteristics of the climate of Mentone, and of the Riviera in general, it is only necessary to weigh the meteorological facts enunciated.

A cool but sunny atmosphere, so dry that a fog is never seen at any period of the winter, either on sea or land, must be bracing, invigorating, stimulating. Such are the leading features of this region—the undercliff of central Europe.

Behind the mountains which skirt the Riviera and the Mentonian amphitheatre, in midwinter, as we have seen, frost and snow may and often do extend up to the north pole, more than two thousand miles. On the other hand, the wind blows from the northern quarters during the greater part of the winter season. The air must, therefore, be cool, and would be cold, were it not warmed by an ardent sun, darting its rays through a cloudless sky and a dry atmosphere—were it not, also, for the summer heat stored up in the rocks, and given out by them. These causes keep Mentone free from frost when it reigns all around, but cannot make it a tropical climate.

Such a winter climate is perfection for all who want bracing, renovating—for the very young, the invalid middle-aged, and the very old, in whom vitality, defective or flagging, requires rousing and stimulating. It unites, indeed, all the conditions calculated to exercise a beneficial influence in any state of lowered vitality.

The cool, but pleasant temperature, the stimulating influence of the sunshine, the usual absence of rain or of continued rain, the moderate dryness of the air, render daily exercise out of doors both possible and agreeable. Indeed, in such a region life may be spent out of doors throughout the winter. Such an existence, in such conditions, has a direct tendency to create and to maintain the appetite, to improve the digestive and nutritive functions.

The pores of the skin, also, are kept permanently open throughout the winter, and thus the lungs are relieved of the extra burden which is always thrown upon them in northern climates, when the cold damp of winter supervenes. It is, indeed, because the functions of the skin, as an excretory organ and as a purifier of the blood, are all but arrested by the cold in our climate, that sore-throat, influenza, bronchitis, and kidney diseases in general are so prevalent in winter, or existing, become so aggravated. The work of blood-purification, accomplished in warm weather by the skin, is thrown in winter on the mucous membranes of the lungs and air passages, and on the kidneys. These organs are congested, choked, as it were, and succumb to this extra work, the blood itself becoming poisoned by deficient purification from worn out materials. Hence the colds or mucous membrane inflammations, and the fever that accompanies them, in the winter season of the north, as likewise various other forms of chest and kidney disease. Hence also the comparative immunity from these affections on the Riviera.

I selected Mentone as my winter residence ten years ago, because I was suffering from advanced pulmonary consumption. Many of the invalids who have followed my example have laboured under the same dire disease. That the choice was a rational one, will, I think, be generally admitted, on consideration of the facts above stated.

When I first arrived, there were scarcely any strangers, but since I have drawn the attention of my fellow practitioners to the value of this climate as a health resort in chest affections, the foreign population has yearly increased, and numbered last winter (1868-9) fifteen hundred. It contains representatives of most European nations; the English and French, however, have hitherto been the most numerous. Since the translation of this work into German (in 1863) many Germans have made it their winter abode. Our American cousins are also finding their way to Mentone in yearly increasing numbers.

Phthisis is essentially a disease of debility. It principally attacks those who have received organizations deficient in vitality from their parents, or who have injured the vitality of an originally good constitution by excesses of any kind, or in whom such a constitution has been impaired by over work, or by hardships and privations independent of their own will. In such a disease—one essentially of defective vitality—a bracing, stimulating climate, such as I have described, must be beneficial, and has been most decidedly so, both in my own case and in those of the many whom I have attended.

With the assistance of sunshine, a dry, bracing atmosphere, a mild temperature, and rational sthenic treatment, hygienic, dietetic, and medicinal, I have found pulmonary consumption in this favoured region, especially in its earlier stages, by no means the intractable disease

that I formerly found it in London and Paris. After ten winters passed at Mentone, I am surrounded by a phalanx of cured or arrested consumption cases. This curative result has only been attained, in every instance, by rousing and improving the organic powers, and principally those of nutrition. If a consumptive patient can be improved in health, and thus brought to eat and sleep well, thoroughly digesting and assimilating food, the battle is half won; and the principal benefit of the winter climate of the Riviera is the assistance it gives the physician in attaining this end.

Amongst the consumptive patients I have attended, those who were in the early or even secondary stages of the disease, and had vitality and constitutional stamina left, have mostly done well. I have seen, in many young persons, well-marked, crude tubercular deposits disappear, gradually absorbed. In various cases of accidental phthisis in middle-aged, over-worked men, the amelioration has been still more apparent. I have seen well-marked cavities become partly or entirely cicatrized, and the constitutional symptoms gradually subside; the general health and strength steadily improving.

Those who are in the last stage of the disease, on the contrary, appear to derive but little benefit from the change, although I have met with some exceptions to this rule. The malady generally seems to progress slowly but steadily. They suffer from the cold and the wind, and from the occasional outbreaks of wet, chilly weather. Moreover, some feel bitterly the absence of home comforts, and their separation from friends. Some each year drop off in the course of the winter, as they would have done at home, from hæmorrhage, from pleurisy, from bronchitis, or diarrhœa. In their case, it appears to me that little is gained, as far as the disease itself is concerned, by the

change of climate. They cannot avail themselves of its bracing capabilities for out-door life and enjoyment, and sometimes feel the variations, against which they cannot protect themselves as well as at home. Such patients, in the last stage of phthisis, emaciated, unequal to any exertion, evidently arrived at the concluding stage of their earthly pilgrimage, are, in my opinion, better at home, or in a warmer climate than that of Mentone, or of Italy generally—Madeira, for instance, where the temperature is said never to fall below 56°.

I would also include in this category those phthisical sufferers in whom the disease presents itself in the acute form, and in whom it is rapidly passing through its various stages, especially when the disease is of an hereditary character. Change of climate can scarcely be expected to arrest the progress of a malady which, in such cases, is running through its phases with the rapidity of an acute disease.

In some instances, however, of advanced phthisis, in which there is, from the first, but little chance of recovery, the invalids, surrounded by dear friends, are so charmed with the sunshine, with the foreign scenery, and with the vegetation, that it compensates for all their fatigues and trials. Indeed, I have known them rejoice to be under the bright sky of the south, even in the midst of great physical trials. To such sufferers, admirers of the picturesque, mentally alive to the beauties of nature, to the glory of the sun daily careering in a blaze of light through the heavens, to the beauty of the "ever-changing" sea, to the shadows on the mountains, the quiet repose out of doors, all but daily enjoyed, amply compensates for the sacrifices of exile. They descend the valley of the shadow of death rejoicing, nor can any one, in their case, regret the fatigue encountered in the journey from England.

Even among this class of patients I have repeatedly seen very severe and extensive disease arrested for a time, and life evidently prolonged; whether saved or not the future alone can tell. I have still oftener seen this occur with persons who, although very seriously ill, were evidently not in so irrevocably hopeless a state as they were supposed to be at home. In framing a prognosis, medical practitioners are often unconsciously influenced by their temperament. Those who see everything *couleur de rose*, are hopeful up to the last, and can scarcely believe that their patients may not get well. Others, of a less sanguine temperament, soon give up all hope, and in some cases too soon. In medicine, as in all other pursuits, the middle course is always the most difficult to steer.

In the midst of all the favourable influences of a southern sky, much depends, as elsewhere, on the antecedents of the patient, as explained by the laws of general pathology. Phthisis developed accidentally, in a healthy constitution, from hard work, exposure, or anxiety, phthisis connected with gouty dyspepsia—an all but unrecognised form of the disease, although not so very rare—is more likely to be arrested, or even eventually to get well, than the strictly tubercular or scrofulous form of the disease.

Were I to give an opinion, founded on personal and professional experience, as to the kind of case in which a southern residence is likely or not to be beneficial, to warrant a great sacrifice, I should say: that it is scarcely worth while to send a patient so far from home in the acute stage of the disease, or when the lungs are both entirely disorganized, all but entirely infiltrated with tubercular matter. If one is sound, or if the disease in both is limited, even if there be one large, or several small cavities, *it is* worth while to try what can be done by a

thorough change of climate, by passing the winter in the south. There is a greater probability of disease being arrested, of life being prolonged, and even of a cure being eventually effected than if the patient remained all winter in the north of Europe. I certainly have infinitely more confidence in and reliance on the value of a winter residence in the south than I had ten years ago, when I first left England for the winter, a confirmed invalid. As a practising physician in London, I had not seen the good results from wintering abroad that I have since experienced and witnessed at Mentone. The explanation, however, to me is obvious. Four out of five of my former patients and friends evidently committed all kinds of mistakes, against which, from want of experience, I could not guard them as I can now, as will hereafter be explained more fully. They travelled about for pleasure, when they ought to have considered themselves confirmed invalids, on the brink of the grave, and have remained stationary. They often took up their abode in large, dirty, fever-poisoned southern towns, more occupied in sight-seeing than in health-seeking, and constantly exposed to many pernicious influences. Is it extraordinary that they should generally have come back as bad as, or even worse, than when they started?

The most satisfactory cases that I have witnessed have been those in which climate has not been alone relied on, in which the patient has been under constant and judicious medical management, in which the routine of daily life has been guided by medical experience, and in which the various therapeutical resources that our improved knowledge of phthisis gives the profession have been steadily persevered in. Patients left to themselves, or to rules laid down for their guidance at home, commit all kinds of errors. They constantly omit to do what they ought

to do, and carried away by the example of others, or by the first dawn of improvement, do much that they ought not to do.

Persons suffering from pulmonary consumption should also be cautioned against trusting to the follies and delusions of homœopathy and of other modern fallacies. They should ever remember that they are labouring under a disease, curable in some cases, but usually fatal; from a disease that is still, with all our improvements in medicine, a verdict of death to a large proportion of those whom it attacks. Is it not, therefore, tempting Providence, throwing life away, abandoning the last chance of recovery, to discard the experience of ages, and to entrust life to the unknown professors of doctrines which every master-mind in Europe, engaged in the study and practice of the medical profession, pronounces insane delusions, to say the least?

Many persons who have always suffered from bronchitis in England are quite free from it at Mentone, owing probably to the dryness of the atmosphere. This remark applies to other similar climates. I have an old friend at Nice, a London physician, now above sixty, who abandoned London many years ago, owing to repeated attacks of winter bronchitis, which at last led to very serious complications. He made a winter settlement at Nice, and, ever since, has there passed the cold season, perfectly free from all bronchial mischief, and in flourishing health. In several instances of this description with which I am acquainted, the attempt to spend the winter in England has been attended with a return of the bronchial affection with its usual severity.

In one case, attended during my first winter's sojourn in the south, which I quote as illustrative of what climate and perseverance may accomplish, a gentleman aged forty-

three, with softened tubercles, who had suffered from chronic laryngitis and bronchitis for nearly three years in England, lost all cough and laryngeal irritation after two winters' residence at Mentone, and has had no serious return of disease. In his case phthisis followed persevering attempts to get rid of gout in the chronic form, supervening on a first acute attack. Exercise, and a rather low diet, were evidently carried too far, and continued too long, considering the arduous nature of professional pursuits. This patient, who got rid of gout merely to fall into tubercular cachexia, is now quite well, and shows no external evidence of the past disease.

It is easy to understand that a dry, bracing, cool, invigorating climate such as I have described, should have a beneficial influence on the respiratory mucous membrane of persons who have still some of the vital power of youth, or some constitutional stamina left. When we add to this, all but daily exercise in the open air throughout the winter, in the midst of magnificent scenery, removal from the cares, anxieties, and duties of ordinary life, pleasant social intercourse with fellow-sufferers and their families, all tuned to the same unison of cheerful and hopeful resignation, we certainly have, united, the hygienic influences calculated to renovate the general health, and thus to arrest the development of tubercular disease. Indeed, I am firmly convinced that a warmer and milder winter climate, only to be found in a tropical or semi-tropical region, is less favourable to the recovery of health in chronic chest disease;—always provided rigid attention be paid to the precautions necessary in a region where the temperature varies so constantly as it does on the shores of the Mediterranean. Heat and moisture debilitate and relax the economy; moderate cold and a dry atmosphere invigorate and strengthen it; and in the

treatment of phthisis, the renovation of the constitutional health, as repeatedly stated, is of primary importance.

In his valuable work on Pulmonary Consumption,* my namesake, Professor Bennett of Edinburgh, has forcibly drawn the attention of the medical profession to the fact that persons labouring under tubercular disease of the lungs are generally worse in very warm summer weather than in dry cold winter weather. My own experience, as well as that of various friends who have practised in tropical climates, tends completely to corroborate this view. The Army reports during the last forty years, from the East and West Indies, from Malta and Gibraltar, indeed from all our tropical colonies, also substantiate the correctness of this opinion. It is found that consumptive patients do not get on well in hot weather in warm climates. The tubercular deposits have a tendency to soften under the influence of heat, the debilitating perspiration to increase, and diarrhœa to become permanent. Moreover, the heat impairs rest and sleep at night, destroys the appetite, induces languor, and renders exercise all but impossible; thus striking at the root of all constitutional improvement. And yet, is not such improvement the only real mode of arresting the course of the disease? The fact has become so self-evident in the French army in Algeria, that consumptive patients are now sent to the north of France before the hot season commences.

It is of extreme importance that the truth of the above-mentioned views should be generally known and acknowledged. In times still recent, a contrary opinion prevailed generally, and consumptive cases were very erroneously sent to warm climates, as to the region best calculated to arrest the progress of the malady. An old and esteemed

* "On Pulmonary Consumption," by Prof. Bennett. Second Edition. 1860. Edinburgh.

friend, Dr. Dundas, who practised for twenty-five years at Bahia, in Brazil, and during that lengthened period enjoyed the confidence of the entire British community, has repeatedly told me that throughout his residence he was constantly receiving from Europe consumptive cases, that merely got worse and died if they remained. So convinced did he become that the climate, although otherwise healthy, was not suited to consumption, that he used invariably to send to Europe the cases of phthisis that occurred among the English residents in his own practice.

Chronic bronchitis does well, under judicious medical management. Generally speaking, it gradually diminishes and dies away; provided, however, the patient is prudent, obeys hygienic and medical rules, and does not make a stove or hothouse of the room where he or she lives, day or night. By falling into this error, as nearly all the Germans and Swiss do, it is quite possible to make a northern climate out of Mentone, and to fall from one cold into another throughout the entire winter.

The form of asthma which is connected with chronic bronchitis, the emphysematous form, also does well. As its gravity depends on the bronchitis, if the latter is improved so is the asthma. I believe, indeed, that many of the pitiable sufferers who present this complication, and who every winter get worse, with the vista before them at home of inevitable aggravation of their disease, might attain all but entire freedom from chest suffering by passing several successive winters on the Riviera. To them, in reality, the health question is as important as it is to the consumptive. This form of asthma gradually leads to death in those who are advancing in life, and that through a stage of great suffering. The heart, the liver, the kidneys, often become secondarily congested and diseased, and death is the result of the combined influence

of these various secondary maladies. In corroboration of this statement, I may mention that I have known several instances of patients arriving at Mentone in all but a dying state from chronic bronchitis and asthma, who have gradually rallied, and eventually attained a very bearable condition.

I cannot say the same of the spasmodic form of asthma, the form that occurs in childhood, in middle age, at any period of life, apparently from nervous causes. I have known such cases do well, but the majority do not. I presume that the climate is too dry, too stimulating, and I am inclined to think that a moister climate, such as that of Pau, Ajaccio, Palermo, Algiers, or Madeira, would be more likely to suit. I do not say that persons suffering from nervous asthma should not try Mentone, for, as stated above, I have known these cases do well; but I think it would be imprudent for such patients to make a regular six months' winter settlement before trying the place. This remark applies equally to other and different climates. Nervous asthma is so capricious a disease, so much under the influence of hidden, obscure, nervous, and meteorological conditions, in its manifestation, that it is impossible to tell beforehand whether a locality will agree or not. The best plan, therefore, is to go first to an hotel, and to be guided by results.

I would mention, that to some asthmatic persons the mere fact of living near the sea, or a few hundred yards from it, will make all the difference between severe suffering or perfect immunity, and conversely. At Mentone, therefore, both situations should be tried in case of need. I have observed that nearly all persons who in England are ill when living in immediate proximity to the sea, appear also to suffer at Mentone. I should therefore advise no such persons to settle there unless they can

obtain one of the houses built away from the sea. To live at Mentone, in a large proportion of the houses, is really like living on shipboard; for most of those first built, and nearly all the hotels, are situated on or near the beach. Within the last few years, however, a number of villas have been erected at some distance from the sea-shore, within the amphitheatre, as also two hotels, the Hôtel du Louvre, and the Hôtel Beau Séjour. To chest cases in general the proximity of the sea is, I think, decidedly beneficial. Sea voyages are universally recommended in such diseases, and nearly all the sanitaria for the consumptive, such as Torquay, Bournemouth, Ventnor, Malaga, and Funchal, in Madeira, are on the sea-coast. Indeed, salt is lauded by some modern physicians as a panacea for phthisis. When the sea beats on the shore at Mentone, the spray is thrown inland in the shape of a fine dust-like vapour, which extends fifty or even a hundred feet from the beach, and must be inhaled by those who live in the houses that line the shore. The air coming from the sea is undoubtedly the purest and most wholesome we can possibly breathe.

There is another class of patients that do not appear to me to benefit, as a rule, by the climate at Mentone—those suffering from the more severe forms of spasmodic and intermittent neuralgia. I presume that the dry, keen, cool air of the north Mediterranean coast is in general too stimulating for such cases. In one, that of a lady, a former patient of my own, whom I had sent from England on account of agonizing tic which usually lasted all winter, and who had been free the first year at Palermo and Naples, the tic returned with its usual violence at Mentone, and lasted several months, as it would have done in England. During subsequent winters, passed at Naples and Malta, this patient has again partially escaped. In

other less severe cases I have known the neuralgic attack, apparently roused by the cold days, long to resist medical treatment.

I must add, however, that in some instances patients liable to neuralgia have completely, or all but completely escaped from their usual enemy during the entire winter. It appears to me that these favourable cases occur mostly in persons liable merely to neuralgic pains connected with deranged digestive and constitutional states, the unfavourable ones in persons suffering from neuralgia in its more aggravated form—a very difficult malady to deal with in any climate.

To those who, without having any particular ailment, are weak, ailing, dyspeptic, below par indeed, and who want invigorating and bracing, I have found the climate very valuable as a winter residence.

To weak, sickly children, the sunshine and out-door life appear to be inestimable. Each winter I see many delicate children rally in a most marvellous and gratifying manner. Instead of suffering constantly from catarrhal affections, as is so often the case, they seem to enjoy a happy immunity from these ailments. Constantly out of doors, in the sunshine, they soon become ravenous for food, sleep well, and get fat and rosy. It is the very climate for strumous children who constantly lose ground during our long northern winters. Climate alone, however, must not be trusted. Good food, plenty of air day and night, and judicious medical treatment, if required, are essential.

The very aged, like the very young, seem to thrive in the mild winter climate of Mentone. They can get out constantly, either on foot, in Bath or donkey-chairs, or in carriages, instead of being confined to the house for months, as is often the case in England. Moreover, they

are never exposed to extreme cold, so fatal to old age. In England, a sharp frost kills the aged as it kills flies in autumn. The blood is driven internally, and fatal congestions of the lungs, brain, and heart occur, or still more fatal inflammatory affections. All these dangers are escaped. Instead of the cold east winds of the spring, which yearly fill the obituary of the *Times*, there is a truly genial, balmy spring, the spring of the poets.

The Riviera climate is equally propitious to those suffering from disease of the kidney, congestion, albuminuria, gravel. The dryness and mildness of the atmosphere, by promoting cutaneous transpiration, relieve the kidneys as well as the lungs — for in our climate the kidneys have also extra work to do in winter. Moreover, the power of living in the open air, and the improvement which follows in the general health, is of as great importance in these diseases as in chest affections. I have met with many very remarkable cases of improvement and even of cure.

One important reason why the climate of Mentone and the Riviera is beneficial in all these forms of disease is, that it is seldom or never, at the same time, *cold and wet*. When the weather is cold, it is with north winds, and the air is dry. When the air is moist, south winds prevail, and the temperature is mild.

I have long remarked in England, that colds in the head, sore-throats, attacks of bronchitis and influenza, only become prevalent when the weather is both cold and wet. Cold dry weather alone does not produce them epidemically, nor does mild damp weather. However wet and damp it may be in England, or in the midst of the rain and mists of the west coast of Scotland, as long as a summer temperature lasts, and the thermometer is at or above 60°, very few colds are met with. Let it, however,

fall to 40°, 45°, or even 50°, and then damp or wet weather is immediately followed by the development of catarrhal disease on a large scale.

Indeed, rainy weather, when the thermometer is not below 55° or above 65°, night or day, is not injurious to health. The cool, rainy summers which we sometimes have in England, and which characterize the west coast of Scotland, are healthier than dry, warm, fine summers.

Thus, the summer of 1860, one of the most rainy known for many years, was also one of the healthiest. In 1861, it rained all but incessantly on the west coast of Scotland, from the middle of June until the middle of September. During the summer quarter, the results of observation at 55 stations of the Meteorological Society, showed that the rain-fall was 15·66 inches, instead of 8·80, the average of the previous years; and yet the season was unusually healthy. Thus the mortality was 175 deaths in every 10,000 persons living; whilst in England it was 199. There was the usual difference between the town mortality and that of the country:—in the towns it was, in Scotland, 204 in every 10,000 persons, in England 220; in the country, in Scotland, 142, in England, 178. These data are taken from the quarterly report of the Registrar-General.

I was residing or travelling on the west coast of Scotland during the greater part of this quarter, as an invalid, and found that the temperature kept between 55° and 65°. I scarcely ever found it either above or below. I observed around me, also, as on previous visits, all but universal immunity from catarrhal affections, colds, or coughs. I usually spent the day fishing, often under an umbrella, rowed in a boat on the lochs, and never once caught the slightest cold; although very liable to do so in a lower temperature, if there is the slightest damp. In England

the summer was much drier and warmer that year. Heavy rain no doubt acts beneficially in clearing the atmosphere, the earth, and the drains, of putrescent matter and of miasmata; especially when it falls in great quantities in a short time, as in warm climates.

On the other hand, continued rain and damp, with a temperature at or above 70°, hyperstimulates the liver and skin, predisposing to liver and intestinal affections, to diarrhœa, and dysentery, and to cutaneous diseases.

At Mentone the winter temperature in the shade is generally below 60°, but the air is usually dry, and this is no doubt the reason catarrhal affections are rare. Whenever the weather is both cold and damp, colds are caught at Mentone as elsewhere, but they generally die away as soon as the dry sunshine returns, even if the thermometer remains low. Those who enjoy the greatest immunity are those who keep their rooms cool and well ventilated day and night. Those who make large fires, who close their windows hermetically, and avoid every breath of air, are precisely those who suffer the most in this respect. I may again instance the Germans and Swiss, who, accustomed at home to shut every crevice, and to treat the external air as an enemy, generally follow the same plan at Mentone, and suffer accordingly.

One of the most convincing proofs of the healthiness of Mentone is the general absence of severe accidental disease. During my ten winters' residence I have seen but very little of the diseases usually met with in the south of Europe—fever, malaria, dysentery, or of any serious malady attributable to external causes. Indeed, I have been principally consulted for the diseases that the invalids brought with them. This is the more remarkable when we consider that in many large continental health towns, such as Naples, Rome, Malaga, a considerable

proportion of the foreign physicians' duties consists in attending their countrymen for maladies of the above-mentioned character.

To derive that benefit, however, from the climate of Mentone, and of the south of Europe generally, which it is capable of affording in disease, and especially in pulmonary consumption, the most rigid adherence should be paid to the hygienic rules peculiar to these regions during the winter season. It should never be forgotten that in winter the heat is sun-heat, and that the air, barring its influence, is usually cold. Warm clothes and woollen outer garments should be used. In dressing for out of doors, a thermometer, placed *outside a north room*, should be consulted.

Those who visit the south for the first time often think that summer clothing only is necessary, and that warm clothes and great-coats may be discarded. I have even known physicians at home, who should have been better informed, tell their patients so. Never was there a greater mistake. Summer clothes are useless from December to April. Those required are the light but warm woollen clothes we wear during our cold spring and autumn, with light over garments. The latter can seldom be safely dispensed with, even on the sunniest and warmest winter days, on account of the great difference between the sunshine and the shade. We may take a lesson from the native gentlemen, who, whenever it is not absolutely warm, cover themselves up to the chin with heavy cloaks.

If these rules are not observed, if warm woollen clothes are not constantly worn, and even warm flannel or merino vests next the skin, rheumatic pains often attack the strong as well as the weak, and more especially those who are advancing in life. Indeed, I question whether, in the south of Europe, in winter, it is not as difficult to keep

free from rheumatic pains as it is in the north. The heat of the sun in the day makes northerners thoughtless about outer garments, whilst the least exposure to the cool dry air which reigns for months may be followed with this penalty. Attendance at church is a fruitful cause of rheumatism and colds. If the church is warm, people catch cold on going out. If it is cool, they nearly all come much too lightly dressed for sitting still a couple of hours "in their Sunday best," and often return home with sharp pains, which they try to account for by imaginary draughts. I myself wear, in all weathers, a thick woollen Inverness cape, such as I should wear in Scotland, and that throughout the winter. It is an admirable garment for such a climate.

This tendency to rheumatic pains is not peculiar to the Riviera. It exists, in winter, all over the south and the east, in Italy, in Spain, in Egypt, in Algeria, and even in the Desert of Sahara. The Bedouin Arabs, in winter, with the thermometer at 80° or 90° in the daytime, swathe themselves up in woollen garments and woollen cloaks, for rheumatism is their enemy as well as ours.

Although rheumatic pains are common, rheumatic fever is rare. I have seen, it is true, several cases, but it has always been early in the winter, in persons who evidently brought the tendency with them. The free action of the skin, in this climate, tends to purify the blood and to render rheumatic fever uncommon. It is not by any means a frequent disease among the natives, although muscular rheumatism, on the contrary, is very common, owing, no doubt, to exposure and to insufficient clothing.

As might be anticipated, such a climate is favourable to gout, and I have known many gouty persons enjoy a happy immunity from habitual suffering. Sharp attacks of gout, however, may occur here as elsewhere, in those

who are liable to them. The free and constant action of the skin must be favourable to the gouty as well as to the rheumatic.

The hours for out-of-door exercise should be between nine and three or four, and the return should be so arranged as to secure the arrival at home before sunset. Italian physicians appear to attach a mysterious and noxious influence to the hour of sunset. In such a climate as that of Mentone and Nice, I am persuaded that the danger is in the rapid lowering of the temperature after sunset, which exposes to sudden chills, from the pores of the skin being often open at the time through previous exercise. This sudden chill is no doubt alone sufficient to produce fever of the intermittent type, without malarious agency. It is because the same danger exists even in midday, in passing accidentally from the sun to the shade, that it is always necessary to be dressed for the latter.

The invalid should inhabit a south room, and never remain long in a north room unless the weather be warm, or unless it be warmed by a fire. The one is summer, the other winter. When the weather is bad, he or she should make a good fire, and scrupulously stay at home until it changes. Sunshine and warmth are sure soon to reappear, and thus to bring the confinement to a close. After several days' chilly rain, as already stated, sore-throats, colds in the head, coughs, and rheumatic pains begin as in England, but then the sun again shines, and they usually at once die away. All dinner and evening parties should be strictly forbidden to invalids. They should be in before sunset, and not leave home again until the following morning, throughout the winter.

Lastly, exercise and out-door life must not be carried so far as to produce permanent lassitude. Many of the most confirmed invalids fall into this error—one easily

committed—owing to the great attractions of out-door life, to the all but constant fine weather, and to the injunction generally made to take daily exercise, if possible.

This last remark applies more especially to consumptive patients. Physical debility is a more ordinary accompaniment of phthisis than is generally supposed, and when it exists much exercise is decidedly pernicious. In some cases, indeed, scarcely any exercise can be taken without impairing the digestion of food, and thus producing sleeplessness and extreme lassitude,—a fact not generally known, even by physicians, and clearly a result of the organic cachexia connected with the disease.

During the ten winters I have passed at Mentone, constantly surrounded by consumptive patients labouring under every stage of the disease, I have become more and more convinced of the truth and importance of this fact. Those who do the best are those who accept their position cheerfully, who secede entirely from the valid part of the population, from their amusements and occupations, and are content to lead a quiet, contemplative existence. Happy are they if they can find pleasure in books, music, sketching, and the study of nature; if they can be satisfied to spend their day in the vicinity of the house in which they live, and to sit or lie for hours basking in the sun, like an "invalided lizard on his wall," following implicitly the medical rules laid down for their guidance. Nearly all the best cases I have met with have been among such. Those who have no mental resources in themselves, who are miserable unless engaged in active pursuits, fare the worst, both in body and mind. They do not resignedly accept the forced inaction their disease entails upon them, are discontented and restless, constantly commit imprudences for the sake of amusement, and over-tax their

strength by participating in the pursuits of the healthy and strong.

A good plan for the invalid is to walk, ride, or drive to one of the many romantic regions in the neighbourhood—to Roccabruna, the Cabrole valley, the Cap Martin, the Pont St. Louis, the Nice, or Genoa Road, or, on calm days, to the picturesque rocky beach—to take the cushions out of the carriage, if driving, with a cloak or two, and to remain sitting or lying in the sunshine, in some spot sheltered from wind, for two or three hours. The range of observation is thus increased without fatigue, the glorious scenery of the district is seen and enjoyed in its ever-varying phases, and the mind is refreshed by change.

On fine days, when the sea is calm, boats also can be had for a sail or a row, and air and exercise obtained without fatigue. Those who are equal to a sail and a drive the same day, can, according to the wind, sail east or west along the coast as far as Ventimiglia or Monaco, distant, the one seven, the other five miles. They can then land and return by means of a carriage sent on from Mentone to meet them. The view of the mountains thus obtained from the sea is truly magnificent. Indeed, it is only from the sea, as I have stated, that the grandeur of the mountain and coast scenery can be truly appreciated.

With the above precautions, the climate of Mentone, and of the south of Europe generally, is safe and beneficial; without them, it is unsafe and treacherous. This is evidenced by the great winter mortality of the natives of the Nice and Mentone districts, and of Italy and Spain generally, by pneumonia and pleurisy, two of the commonest maladies. Being badly clothed, never making fires, and ignorantly braving these atmospheric changes, the lower orders are constantly exposed to chills, and succumb in great numbers to these diseases, treated

as they are by bleeding every few hours. Persons in the latter stages of phthisis more especially suffer from the slightest dereliction of the above rules, which they are not always the most careful to follow. Indeed, I have no hesitation in asserting that the improvement of the phthisical invalid depends as much on close attention to these injunctions, as on the medical skill of his attendant, and that it is the more decided the more faithfully they are observed.

One great advantage of the dryness of the atmosphere, and of the absence of severe cold in the night, is, that bedroom windows may be left open, more or less, without risk of any kind, throughout the winter, and thus perfect night ventilation of the bedroom can be attained. This is a most important point both for the sound and the unsound, but more especially for invalids, and for those who are suffering from pulmonary consumption.

Invalids should invariably sleep in a south room, as they thereby insure a mild and equable night temperature throughout the greater part of the winter, even with the window open. The same rule, however, does not apply to those who are sound, or to those who have in a great measure recovered health.

In south rooms, saturated all day by warm sunshine, the temperature seldom falls at night below from 56° to 60° Fah., owing, no doubt, in part to the radiation of heat from the walls. In north rooms, on the contrary, the temperature approximates much more to that of the external atmosphere, unless raised by fire. With the window slightly open, it will generally range from 50° to 56°, according to the coldness of the night. This is a much more wholesome state of things for the healthy, as a moderate degree of cold at night braces and invigorates the system. The warm bedroom is a debilitating hothouse

shine, notwithstanding their extreme proximity to each other. Moreover, the streets, although narrow, are clean, owing to everything that can be turned into manure being carefully preserved, and carried off to the mountain terraces.

The diseases under which they suffer present nothing peculiar beyond a tendency to scrofula and chlorosis in the young, which may be attributed to a low vegetable diet. Gout is all but unknown, and rheumatic fever rare, although muscular rheumatism is common. Until within the last few years intermittent fever was all but unknown, but for several summers there have been many cases. This is a very singular fact, difficult to account for on the marsh theory, as there are no marshes or plains in the district. Some of the cases have occurred in mountain villages such as Grimaldi, perched on the rock side 700 feet high. It either proves that the mere saturation of the soil by rain in winter and spring, in these latitudes, may occasionally produce intermittent fever, or that in certain electrical and thermometrical conditions of the atmosphere these fevers can be generated without marsh miasmata by mere chills, which I believe to be the case. In Algeria and Corsica I found intermittent and remittent fever to exist everywhere, on high mountains as well as on plains, although undoubtedly much less frequent and severe on the former. It has been suggested that the great increase of tanks of stagnant water for irrigation, owing to the increased prosperity of the country during the last few years, may be the cause of this recent manifestation of ague in the summer heats.

The sick poor are attended by Dr. Bottini and Dr. Farina, both men of ability and much esteemed. They are the medical and surgical attendants of the new hospital, recently erected in the angle of the eastern bay.

breaks and reverse the engine, the train does not stop all at once. It continues its progress for a time, notwithstanding the most judicious and efficient steps to arrest it. When it yields to control, at first it remains stationary, and later, only, begins to retrace its steps.

So it is in disease; its onward progress has first to be checked. Change of climate, the removal of all disturbing, pernicious influences, may not apparently tell at first, although they may be silently, quietly exercising the desired and anticipated influence. Then comes the stationary period, and only later still—in pulmonary consumption often not until the second or third winter—the real, undoubted improvement.

I have watched many sufferers for successive winters, and have thus had the opportunity of judging comparatively. Unquestionably the most satisfactory cases of arrested and of cured phthisis that I have seen, have been among those who have had the power and the will to return again and again; who have adopted my motto, *vivendum est*, "to be or not to be," and have cheerfully made every possible sacrifice of family ties and of social position and duties, in order to give themselves a fair chance of life.

The health of the native population is very good, according to my friend Dr. Bottini. In his work, entitled "Menton et son Climat," Dr. Bottini, who has practised a quarter of a century in the district, says that the average duration of life is forty-five years, an average far above that of the town population of the south of Europe in general. He also says that a large proportion of the older inhabitants of the district attain to above seventy years of age. This is the more remarkable, as the houses of the old town are crowded, one above the other, in a most unhygienic manner. But then they are built on a very steep acclivity, so that nearly all enjoy light, air, and sun-

CHAPTER VIII.

MENTONE IN ITS SOCIAL ASPECT.

AMUSEMENTS — DRIVES — RIDES — PEDESTRIAN EXCURSIONS — MOUNTAIN VILLAGES—CASINO—CHURCHES—SOCIAL LIFE.

"Ah! what a life were this, how sweet, how lovely!
Gives not the hawthorn bush a sweeter shade
To shepherds looking on their silly sheep,
Than doth a rich embroidered canopy
To kings, that fear their subjects' treachery?
O yes, it doth; a thousand-fold it doth."—SHAKSPEARE.

SINCE the first edition of this work was published, in 1861, Mentone has quite changed its character. It was then a quiet little Italian town on the sunny shore of the Riviera, with two or three small hotels, principally used by passing travellers, and half a dozen recently erected villas. Now it has become a well-known and frequented winter resort, with a score hotels, three times that number of villas, and a mixed foreign winter population of above fifteen hundred. Many of these winter visitors are invalids in search of health, but by far the larger proportion are mere sun-worshippers, who have left the north to bask in the southern sunshine, or travellers to or from Italy, glad to rest for a time under the lemon and olive-clad hills of lovely Mentone. Its resources for visitors, however, are still principally in picturesque outdoor life. The scenery is most grand and imposing in the mountain background, most picturesque and romantic in the nearer hills and coast outline. Every ravine, every valley is a path of great love-

liness, ascending gently towards the higher range. The flora is very abundant, and, as we have seen, most of our garden spring flowers grow wild in great luxuriance. The geological aspects of the country are also very instructive, and afford constant occupation and amusement to those interested in such pursuits.

The great invalids, if prudent, mostly keep to the drives and walks along the seashore. Those who are stronger, mounted on sure-footed donkeys, ascend the mountain paths as far as their strength permits; whilst the robust and valid members of the community try their pedestrian powers by ascending the higher mountains in various directions. Whenever the sun shines there are protected valleys and sunny mountain nooks, where at all times, in December or January, as well as earlier and later, warmth, a quiet atmosphere, and flowers are sure to be found. What with these occupations, books and papers interchanged, and the harmonious intercourse of countrymen united by the bond of common origin, the winter passes pleasantly, merely saddened, occasionally, by the final departure of some hopeless sufferer.

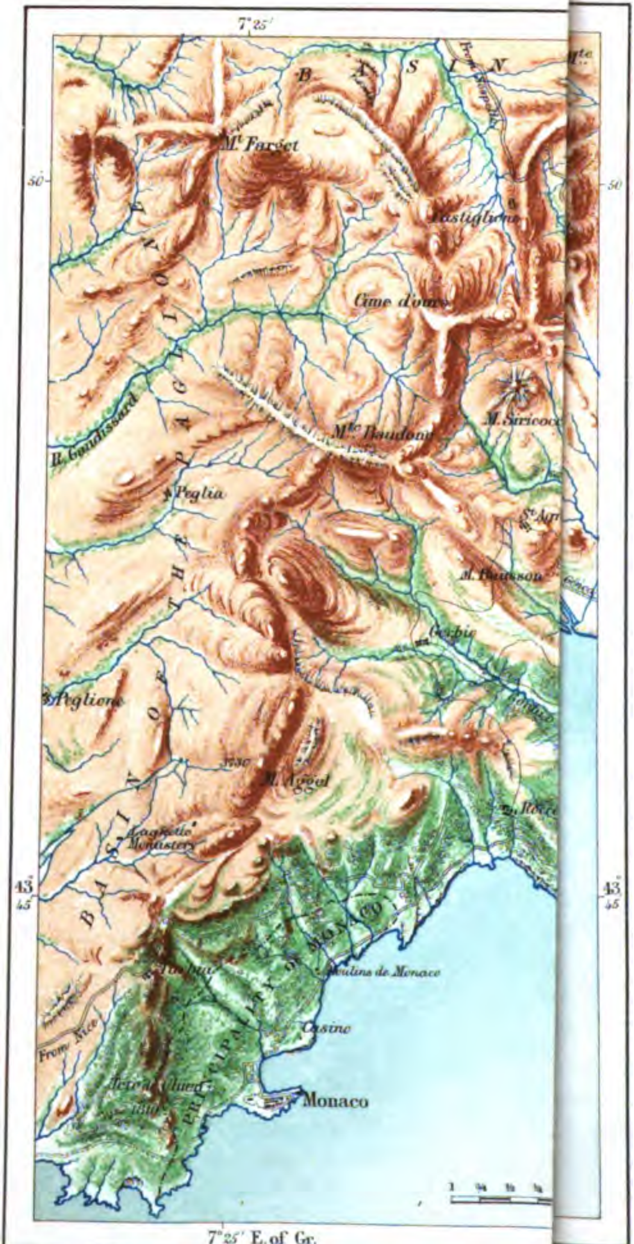
Although the Mentonian amphitheatre is limited, as described, it is sufficiently extensive to offer all but endless excursions to visitors, ill or well, and more especially to pedestrians. The protected valleys and hills are very numerous, and within the reach even of the invalid population. Once, also, the higher barrier of mountains has been passed, a perfect Switzerland opens out to the adventurous and valid tourist.

Within the immediate area of the Mentone district there are other points of interest besides the valleys and hills. The drives are very picturesque and lovely in their entire extent, and are all within the peculiar shelter of the district. They are: the beautiful western or Nice

road to Roccabruna and the Turbia; the equally beautiful eastern or Genoa road to Ventimiglia and Bordighera; the charming road along the shore to Monaco; the road to the Cap Martin, to its bold, broken, rocky point, to the ruins of the old convent in the centre, and to the telegraph tower; the mountain pass road up the Carei valley, which winds over the mountains to Sospello and Turin; and lastly, the road that leads along the Cabrole valley to the foot of the Sta. Lucia and Sta. Agnese mountains.

The first-mentioned drive, that to Roccabruna, Turbia, and Nice, has already been described. It is the road the stranger passes along on his arrival at Mentone from Nice, and is so exquisitely beautiful that it generally remains the favourite excursion, even during a residence of many months. Two hours are required to gently ascend the mountain side from Mentone to Turbia, at the summit of the pass. During the entire ascent the road is thoroughly sheltered from the north, and steeped in sunshine until the sun descends behind the mountains on the western horizon. The return only takes one hour, or one and a half, according to pace. The village of Turbia, which crowns the pass, is a landmark in history. It was the frontier between Gaul and Liguria in the time of the Romans, and there is still to be seen near the road the very interesting ruins of a tower built by the Roman emperor Augustus, nearly two thousand years ago. These ruins show well in what a massive style military works were constructed by the Romans, and are quite worth a special visit.

The Genoa road, which skirts the coast, is, as I have stated, equally beautiful. It begins to ascend at once on leaving the eastern bay, passing over the picturesque bridge and ravine of St. Louis. Above this it is positively blasted out of the side of the limestone rock.


7° 25'
B A S I N
Mt Farget
50
Castiglione
Cime d'ours
R. Gaudissard
Mte Baudon
Peglia
M. Bausson
Gorbio
Peglione
M. Aggel
Laghetto Monastery
BASIN OF THE PAGLIONE
43° 45'
Moulins de Monaco
Casine
Monaco
From Nice
PRINCIPALITY OF MONACO
7° 25' E. of Gr.

In cold weather the invalid should not go beyond the turn or highest point of the road, as there is a cold gorge beyond. But on a fine warm day the drive may be prolonged along the coast to Ventimiglia, a quaint old fortified town, with a good sized river, the Roya, which descends along a fine and wide valley from the foot of the Col de Tende. Ventimiglia is seven miles from Mentone; and Bordighera, where the palm trees are met with in all their glory, is four miles further. On the return, if "imprudently" made towards sunset, a most glorious view is obtained when the highest part of the road is reached near Mentone. The entire amphitheatre is beautifully seen, and the setting sun behind the Esterel mountains reveals their sharp outlines, the Isle St. Marguerite at Cannes, and the lighthouse at Antibes, as distinctly as if only a few miles distant, instead of forty or fifty. They are clothed, also, in the most magnificent colours, purple, crimson, and red.

> "But lo! the sun is setting; earth and sky
> One blaze of glory:
> He lingers yet; and, lessening to a point,
> Shines like the eye of heaven—then withdraws;
> And from the zenith to the utmost skirts
> All is celestial red."—ROGERS.

The drive to Monaco, about five miles along the coast, at the foot of the mountains, is certainly one of the most picturesque in Europe. It winds along the shore following the indentations of the coast; at one moment all but level with the beach, at another rising several hundred feet above it.

On the land side are mountains, ascending rapidly many hundred feet above the sea, hoar with age, rent and torn in every conceivable shape. Sometimes huge rocks that have been riven from the parent mountain by nature's

agencies, hang over the road as if about to fall on the traveller; or they have actually fallen, leapt over it, and lie in wild confusion underneath. In one spot, where an avalanche of this kind has descended from on high, there is a rock as large as a small house, arrested in its downward progress by the trunk of an old olive tree. The veteran appears to be bravely endeavouring to stem the descent of its enemy, and so far has succeeded.

On the Mediterranean side are quiet coves and bays, where the waves ripple gently on a sandy beach, at the foot of jagged, capriciously shaped rocks, covered with pines and brushwood. They appear indescribably lovely from the road, and inspire the wayfarer with an all but irresistible desire to stop his progress, in order to bathe, or to sit leisurely on the shore watching the play of the briny waters.

Both going to Monaco and returning, from early morn to evening, this lovely road is steeped in the glowing sunshine of the south. Being thus sheltered and in the sun all the way, it can be resorted to whenever the wind does not blow from the sea. Monaco, a little town perched on a rocky peninsula all but surrounded by the sea, is itself very interesting. It is a calm and lovely spot on a fine sunny day, with its pretty little port, all but rock-surrounded, clear and blue, enlivened only by a few fishing-boats.

For a few hours each day it contains the small steamer which plies daily between Monaco and Nice under the auspices of the managers of the "Cercle." The railway which has been open for some time from Monaco to Nice has naturally all but entirely diverted the traffic. But few will trust to the faithless, capricious deep who can avoid it. The line is to be opened through to Mentone this autumn (1869). It runs along the shore, through Cap

Martin in a tunnel, and terminates at Mentone at a very picturesque station. At present the railway works are a scar on the surface of nature, and rather spoil the pretty beach along which they pass. Nature will soon, however, obliterate the wound she has received, with wild plants and southern verdure, and then we shall only look upon it as a messenger of progress and civilization. The French Government has promised to construct a port at Mentone. A jetty thrown out beyond the old Genoese castle, which is built on a rock in the sea, at the point of the promontory on which the town stands, would greatly protect and improve the anchorage. It would also enable passengers to land from steamers without having to use boats, a great desideratum.

Mentone and the village of Roccabruna formed a part of the principality of Monaco from the early Middle Ages. The Princes of Monaco held their small principality as feudatories of Piedmont, and although swept away by the French Revolution, were recognised in their former rights at the treaty of Vienna. Their authority, however, was harshly exercised, and in 1848 Mentone and Roccabruna made a small revolution in imitation of France, drove the Prince away, and declared themselves independent. The happy independence thus gained, with Arcadian immunity from taxes or conscription, they enjoyed until 1860, when the Prince of Monaco ceded his rights over his revolted subjects to the Emperor of France for the sum of 120,000*l*. Monaco, his faithful city of six hundred inhabitants, he retained as the capital of the diminished principality, under the jurisdiction of France.

The old city of Monaco is built on an elevated promontory, and from its advancing considerably into the sea beyond the coast line, it is rather too much exposed to the mistral or north-west wind to be an agreeable winter

residence. It was well known to the Romans, is often mentioned by classical writers, and has had a little history of its own throughout the dark and Middle Ages. Its princes have been small kings on their sea-girt rock, and have often waged war, under the wing first of one powerful protector, then of another. The Sardinians, the French, the Genoese, have all in turn been allies or foes, until at last a real annexation to France has taken place. By a treaty made with that country, the customs and criminal jurisprudence have been surrendered, as well as Mentone.

The French Emperor has, however, allowed the Prince of Monaco to retain his gaming establishment, although none are permitted in France, and that when even the German Dukes are beginning to blush at this source of revenue, and to talk of abandoning it, a rather singular fact. But the oranges, the lemons, and the oil, are nearly gone with Mentone and Roccabruna, and the Princes of Monaco do not feel disposed, it may be presumed, to abandon the motto of Monaco of old:

"Son Monaco sopra un scoglio
Non semino e non raccoglio,
E pur mangiare voglio."

The gaming establishment used to be on the Monaco promontory, in the town. But M. Leblanc, the present lessee, has spent a very large sum of money in building a beautiful casino on the model of the one at Homburg—a first-class hotel—and several elegant villas, in a more protected and better situation. These buildings have all been erected in a picturesque spot, on one side of the port, about half a mile east of the town. Thus the promontory on which Monaco is perched shelters the new gambling colony, in a great measure, from the north-west wind, to which the town itself is exposed. Indeed M.

Leblanc is showing much more taste in his erections, and in the arrangement of the ornamental grounds around the casino, than the Mentonians have as yet exhibited. But then his means are great, for he levies tribute on a large community, the gambling population of Europe. Monaco is, I believe, the only regular gaming house open in winter. The garden is well laid out, and the terraces facing the sea are covered with shrubs and flowers that flourish and bloom in winter. There are large beds of Tea, Bengal, and monthly Roses, which flower all winter in more or less profusion. Thus the rose amateur never loses sight of his favourite flower.

The band plays twice a day, from two to four, and from eight to ten. It is composed of forty thoroughly good musicians, selected from Germany and Italy, and discourses really "sweet music" in a noble music-hall or ball-room. It is a great treat to listen to so admirably led and so well-trained an orchestra, in this out of the way place, and it is a pleasure we Mentonians can enjoy when we like. The drive takes about an hour at an easy pace, but by rail it will be only a few minutes.

On a fine sunny winter's day it is a most charming excursion to drive over to Monaco, to lunch at the comfortable hotel, or *al fresco* in pic-nic style, to saunter over the pretty gardens, to listen for an hour to the fairy-like music, and then to return leisurely home, before sunset chills the air. It is a pity, however, that the vice of gambling should be the means of placing these quiet, health-giving pleasures at our disposal. I try, when I go there, which I sometimes do for the sake of the flowers and the music, to forget all about it, and with that view seldom or never enter the gaming saloons. I never recommend any one to settle at Monaco, for I cannot but think that the immediate proximity of a gaming table, in the

absence of all active occupation, is dangerous to many who would never positively seek its excitement and risks.

The Cap Martin, a semicircular peninsula, covered with an Olive grove in the centre, and a protecting Pine forest on the coast margin, is another charming drive. It forms one side of the western bay, and is a most picturesque and attractive spot. The road branches off from the one to Nice near the town, passes through an Olive grove of fine, curious old trees, and then divides into two. The one, after passing by some pretty orange orchards, skirts the shore, fringed with irregular, water-worn rocks, blanched by the waves which the south-west wind drives on them with extreme fury. When there is a storm from the south-west or south-east, it is a magnificent spectacle to watch the sea dashing violently on the sharp, jagged masses of limestone, and breaking into dense masses of foam and spray.

At the extremity of the cape, just as the seashore road begins to turn and to ascend, there is a little sheep track, that winds round the promontory, above the sea, at the foot of the steep myrtle-covered cliffs; and amidst the confused, irregular mass of rocks which line the shore there are various little warm and lovely bays. This path, which I have christened "Monaco lane," is, without any doubt, one of the most delightful spots in the district for the quiet contemplation of nature's sterner beauties. The time to spend an hour or two here is in the afternoon, when the sun, passing to the west, pours its warm rays on this, the western side of the cape. An intelligent survey of the wilderness of rocks will reveal a hundred nooks worthy of an emperor's siesta.

The other branch of the Cap road ascends to the higher ground of the promontory, and leads, through lovely woods of Olive and Pine, with a brushwood of Myrtle, Lentiscus,

prickly Broom, and Thyme, to some old ruins, said by some to be Roman, and by others to be the remains of a convent. Near them is a telegraph tower, which the electric wire has rendered useless.

Both these roads afford at every step magnificent views of the Mentonian amphitheatre, of the grandiose mountains that form it, and of the bold and irregular coast line as far as Bordighera, some twelve miles off. Bordighera, built on a promontory which advances out to sea in a south-eastern direction, is a very prominent object from every part of the coast as far as Antibes. It gives at a distance the promise of greater beauty than is realized on a closer inspection.

The Cap Martin roads have hitherto been in a bad state of repair, owing to contested ownership and to the working of stone quarries in the vicinity. The entire cape, however, has been recently purchased by an enlightened French gentleman, a winter resident, and we may hope for better things. M. Sabatier intends to give the town of Mentone the option of re-purchasing it for a public park. Should it not do so, he purposes building a villa for himself. It is to be hoped that the town will take advantage of his liberality, and convert the cape into what would be the most picturesque drive and promenade in Europe. It would be a great boon, a great charm and attraction, to all lovers of the beautiful in nature who spend the winter in Mentone.

The Turin road (see local map) ascends the deepest and longest valley in the amphitheatre—that of Carei, at the entrance of the town. The ascent begins about a mile from the shore. It is for some distance gentle, until about a mile beyond the village of Monti, when it begins to climb the side of the mountain by a terraced, engineered causeway, like one of the great Swiss passes into

Italy. This road, only recently completed, reaches the summit of the pass, about three miles from the shore, at an elevation of about 2400 feet. It then descends and joins the road from Nice to Turin by the Col de Tende at Sorpello, the second stage from Nice. The Mentonian amphitheatre is thus now in free communication with the highland regions that surround it, and from which it had hitherto been cut off by its mountain barrier. Supplies of forage, and of mountain produce generally, now easily reach Mentone by road carriage, whereas formerly they could only reach by mules, or round by Nice.

Moreover, a beautiful and interesting highland district has become accessible throughout the winter, not only to hardy pedestrians, as heretofore, but to all strangers and invalids capable of prudently leaving the protected regions and of spending a few hours in a carriage. This part of the Maritime Alps contains many places of interest, many picturesque localities, which can then be visited by all but the more confirmed invalids during a great part of the winter. Even the invalid visitor will be able to penetrate beyond the mountain barrier in the autumn, before severe weather has set in, and in the early spring, in April and May, when the reign of winter has ceased in these southern mountains.

The last named drive is along the Boirie or Cabrole valley. This road, a remarkably good and nearly level one, is about a mile and a half in extent. It skirts a mountain torrent, which occupies the very centre of the Mentone amphitheatre, and which carries to the sea the watershed of a considerable extent of the surrounding mountains. When I first knew Mentone there was no bridge over this torrent, where it throws itself into the sea, near the entrance of the town, and after heavy rains it was sometimes so swollen as to intercept all communication for

many hours. A new bridge has been built, so that here, at least, travellers will no longer have to wait "until the river runs dry," for we could never say with Horace,

> "Rusticus exspectat dum defluat amnis; at ille
> Labitur, et labetur in omne volubilis ævum."

The view of the mountains from this valley is magnificent, for we are at their base, in the very heart of the amphitheatre. No winds ever penetrate, not even the sea breeze; the valley describing an angle which effectively shuts it out. The railroad station has been erected at its entrance in the midst of lovely mountain scenery. At the termination of the carriage road there is a picturesque olive mill, and beyond a romantic pathway, which extends for another mile, meandering among Olive and Pine groves, until it reaches the small village of Cabrole, at the head of the valley.

About the centre of that portion of the valley which is occupied by the carriage road, the torrent receives a tributary from the west, bringing the waters of one of the prettiest ravines of the district. It is called the Primrose and Hepatica valley, owing to the presence of these flowers in profusion in early spring. Both the Cabrole and the Primrose valleys are invaluable to the invalids of the western bay, offering a safe retreat from every wind, sunshine, and the most wild, beautiful scenery. Being within half a mile of the entrance of the town, they are as accessible to pedestrians as to those who ride or drive.

Strangers have to learn how to enjoy these drives. The plan that I recommend is not merely to drive to a point and then back again, but, once the general features of the country have become familiar, to make use of the carriage or Bath chair or donkey merely to reach the most sheltered and picturesque part of the region selected. Then it should be abandoned, in order leisurely to explore on

foot the romantic mountain paths and the charming woodland nooks that can only thus be reached. If unequal to such an exertion, the invalid can recline in some chosen spot, lazarone fashion, on the ground, in the sunshine. With the help of rugs and cloaks, or of the carriage cushions, a comfortable encampment may be made, in which an hour or two passes very swiftly in the enjoyment of the felicity so eloquently described by Shakspeare in the verses at the head of this chapter.

Should even this be too great an exertion, the carriage can be stopped in some exceptionally lovely spot, turned so as for the hood to afford protection from the sun or wind, the invalid made comfortable, and then the valid members of the party can depart for a stroll.

This quiet communion with nature is infinitely preferable to long fatiguing drives, and contributes much more to the improvement of health. A carriage used in this way gives an invalid the command of all the most beautiful scenery of the district, and I strongly advise all who can afford it to engage one for the season, the more so as carriages are both difficult to obtain and dear if taken for a day or a drive, just as in small country towns in England. Engaged by the month or season they are not unreasonably expensive. A comfortable open carriage, with two horses, can be had, from either Mentone or Nice, for about 24*l.* a month, including the driver, and all expenses. There are now very tolerable hack cabs, open and shut, standing for hire, at a fixed tariff, opposite the Casino or Club in the town; an omnibus runs, also, from one end of the town to the other.

Horses are but little adapted to the mountainous character of the country, and are so little patronized that they are not always provided. They may, however, be obtained from Nice.

Donkeys are the usual means of ascent to the picturesque mountain valleys and ridges; mules are but little used, as they are said to be vicious and bad tempered. The able pedestrian commands the entire Mentonian amphitheatre; but it is not so with the invalid, with ladies, children, and the weak generally. The ascents are often winding and steep, the roads mere broken tracks,

THE DONKEY WOMAN.

and were it not for the donkeys, much of the most wild and picturesque scenery would be all but inaccessible to the invalid population. These animals are numerous, as every peasant, the owner of a few mountain terraces, keeps one as a beast of burden. Donkeys are as peculiarly suited to a rugged mountain district as the camel is to the desert. At Mentone they are mostly fine handsome animals, and more than usually docile and good-

tempered; probably because they are well tended, and treated with affection and kindness, instead of with contempt and brutality. The peasants always guide them by the voice, not by blows. It is interesting to see the self-possession and security of foot with which they descend the most precipitous paths; at one time sliding, as it were, on their haunches, in steep places, at another skipping like kids, although heavily laden. The donkey

THE DONKEY BOY.

women are only the owners of the saddles, hiring the donkeys from the peasants. Hence the necessity of bespeaking the donkeys over night, otherwise they are off to the mountains by early morn.

The views are everywhere magnificent. I have been told that the scenery at Mentone is very like that of Madeira; only at Mentone there are several miles of level coast road along the sea-shore, which at Madeira are wanting. To get a thoroughly good idea of the district,

the stranger should take the drives which I have described, and then make an excursion on foot, or on a donkey, to the mountain villages of Roccabruna (one hour), Castellare (one hour and a half), Gorbio (two hours and a half), and Sta. Agnese (three hours). The first can be reached in a carriage, the others only on foot or on donkeys. Sta. Agnese, the most remote, is situated at the summit of the first back ridge.

Roccabruna, Castellare, and Sta. Agnese are mountain villages, founded by their inhabitants, ages ago, on account of the facilities they afforded for defence. Roccabruna is about 800 feet above the sea; Castellare 1200, and Sta. Agnese 2400.

Until a recent period, the adjacent shores, and indeed those of the entire Riviera, were exposed to the constant attacks of the Mahommedan pirates of the south Mediterranean. For many centuries it was the Saracens, later the Turks and Moors of Tunis and Algiers, who periodically ravaged these coasts. Their forays were not for wealth, which the poor fishermen and labourers did not possess, but for slaves; for the women were handsome, and the men strong. To withstand these attacks, the inhabitants of the towns chose defensible situations, such as the steep promontories and eminences on which Monaco, Esa, Mentone, Ventimiglia, and San Remo, are situated; fortifying themselves also with strong walls. The agriculturists sought safety by perching their villages on all but inaccessible heights, whence they could see their enemies approaching, and where they could easier defend themselves if attacked.

There are still men alive at Mentone, who, in the early part of this century, were seized on the coast by the Moors, and subsequently lived for years as slaves at Algiers and Tunis. That such should be the case is not surprising,

when we reflect that piracy reigned supreme in the Mediterranean until the year 1816, when Lord Exmouth bombarded Algiers, and that it was not finally extinguished until the French took possession of Algiers in 1830. At the time of Lord Exmouth's bombardment there were thousands of European slaves in the Algerine galleys. These slaves were mostly natives of the northern Mediterranean shores, taken at sea from the fishing boats and sailing vessels, or from the coast villages and towns by sudden forays.

At Sta. Agnese and Roccabruna there are the ruins of ancient castles. That of Sta. Agnese must have been a place of considerable strength. Local traditions say that it was built by the Saracens, in order to keep in subjection the smiling districts which constitute the Mentonian amphitheatre. Probably, then as now it was a garden, rich in olives, in oranges and lemons, and was considered a desirable conquest by the southern invaders.

The castle of Roccabruna is evidently of much more recent date, although it goes back to the Middle Ages. It recalls the recollection of the stronghold of a "Rhine Baron," intent on levying black-mail on those who travelled along the coast-road from Nice to Genoa. Although a mere mule track, this road must have been much frequented in winter in the days when there was not a single carriage road across the Alps, and when winter rendered their snow-clad summits an all but impassable barrier.

All along the coast to Genoa may be seen at intervals the ruins of watch-towers, erected in former times in positions favourable to defence, or suitable for looking out. They evidently formed a part of the general system of protection everywhere necessary against the pirates. These towers, the old towns, pressed into the smallest

possible space, and surrounded with walls, the villages perched on heights up to which the inhabitants had to toil wearily after the day's labour, all vividly point to times far different to the present. They tell of life passed in constant alarm, of eyes constantly turned with anxiety to the sea, from whence the human hawks were ever ready to pounce on the young, the handsome, and the strong—of hearts torn by the distant groans of relatives in chains in a distant land. Such thoughts have often passed through my mind when gazing from some mountain height on the now peaceful scene below. Truly we, of the present day, have much to be thankful for; our lot has been cast in much happier times.

A waterfall called the Cascade, in the Carei valley, is worth visiting. After rain there is a good fall of water, above a hundred feet high, tumbling over vast masses of broken water-worn rocks, and forming charming pools. The prettiest road is through Castellare and skirting the lower part of the back range, over which the water descends. The return can be made down the Carei valley, by the Turin or Sospello road. It is a favourite place for ferns, and also for picnics. The road from Castellare, a donkey-track, taking the visitor to the centre of the background of the Mentonian amphitheatre, affords many lovely views. The entire distance, there and back, is about nine or ten miles.

In the immediate vicinity of the cascade there is a hermit's cave high up in the rock. Its very existence was a tradition until an English sailor climbed up a few years ago, and found some bones, utensils, a half-obliterated inscription, and a date, 1598. Since then it has been repeatedly reached by Scottish deer-stalkers and hardy mountaineers; but not without considerable risk. Indeed, I do not advise any one to attempt it.

The view from the castle of Roccabruna is very beautiful, as also are those from Castellare, Gorbio, and Sta. Agnese. They are all four mere mountain villages, inhabited by the peasantry who till the upper terraces; a simple, hard-working race, who know but little of the world and of its doings. In these villages the curé, or priest, is the father of the flock, and the great man.

From Gorbio to Roccabruna there is a donkey-track over the hills that leads through a very beautiful mountain district, with magnificent views on every side. From this road is well seen, skirting the mountain side, an aqueduct, which brings water to Roccabruna from a great distance. It was completed about twenty years ago. Before that the inhabitants of Roccabruna were very badly off for water, and depended all but entirely on their rain tanks. Now they have a good supply from a spring that is never exhausted.

Most of the places best suited for excursions are indicated on the map of Mentone, which has been drawn up with great care from the Italian ordnance survey. Let no one, however, imagine, says my friend Mr. Moggridge, "that when *all* have been visited he has exhausted the beauties of the immediate neighbourhood of Mentone; on the contrary, there is frequently an entirely new view to be had within 200 or 300 yards right or left of main paths, while each hill, little knoll, or gorge affords a variety in the scenery, either peculiar to itself, or in combination with the distant country. Passing beyond the limits of the map, the country becomes wilder and more grand, but many of the mountain valleys are rich beyond comparison in agricultural products. If ever there was a valley that did 'laugh and sing' it is that of Caiross—a tributary of the Roya. Here in June the rich alluvial soil is covered with abundant crops shouldering one

another. Ascending from thence through a fine forest of Chestnuts, Pinus sylvestris, Abies excelsa, A. pectinata, Pinus cembra, and the Larch, a fine extent of grass land is reached, varying in height from 5000 to 6000 feet. This is the eastern arrête of Autéon, and before it has been visited by the mower, the blaze of wild flowers—many of them beautiful and rare—is almost too much for the dazzled sight. There is one gorge to which I would direct attention, because it is within reach of Mentone—the Gorge of Piaon, one hour's walk from Sospello (Hôtel Carenco) on the road to Mollinetto. Two very pretty waterfalls greet you at the entrance; a little further the savage rocks, the broken forests, and the tossing, tumbling river give a succession of views ever charming ever new, that are excelled only by the great gorges of the Roya. Many rare wild flowers may be gathered here even in the Mentone season."

The language spoken by the peasantry is a "patois," semi-Italian, semi-French, but inclining to Italian. The proprietors and tradesmen all speak both Italian and French, but with them French appears to predominate. The shop-signs formerly Italian are now French. In feeling, the Mentonians occupy about the same midway position, although their Italian sympathies predominate. At the time of the annexation they petitioned unanimously to be "left alone," but their petition was not allowed to see the light. They are rather a handsome race, with Italian features, black hair, and dark eyes. Many very handsome young women are seen.

Mentone has made a great step in advance since I first drew attention to it as a winter sanitarium, ten years ago. There are now many commodious villas and apartments to let furnished, and many more are building. There are also many good hotels and several boarding-houses. Clericy's Hôtel des Anglais, where I have hitherto spent

the winter, is one of the largest and best modern houses in Mentone, and admirably situated. Most of the hotels take inmates "en pension," that is, boarders, and the terms for board and lodging vary from eight to ten or twelve francs a day.

The proximity of Nice is a great advantage and resource not only to those who are well and strong, but even to invalids. By means of the railway Nice may easily be visited between breakfast and dinner, and that without any great fatigue. Formerly, when the Turbia had to be crossed, Nice was all but inaccessible to the invalid population.

The Italian government is pushing on the railway from Genoa to the French frontier very rapidly. There are now several thousand labourers at work at various points, and it will certainly be completed to Mentone before long. The opening out of uninterrupted railway communication with Italy during the winter months, more especially until the Alps are tunnelled, is of too great importance for every nerve not to be strained.

The uncertainty which long reigned as to the course the railway would take at Mentone has much interfered with building operations, and with the extension of the town. No one liked to build when aware that the house, once built, might have to be taken down to make room for the railway. Thus, although the value of land in all eligible situations has decupled within the last ten years, this increased value has been all but nominal; for few residents or visitors have dared to purchase. The final completion of the railway, which is to open this October (1869) will most assuredly be the signal for great improvements, and for still greater extension of the accommodation offered to strangers. The Mentonians are now quite aroused to their own interests, and are rapidly

shaking off the apathy of former days. Nice capitalists, also, are beginning to invest their funds at Mentone.

Nice is a small southern capital, with its Italian opera and French theatre, its daily fashionable promenade and drive, its military band, and its swarm of gaily dressed people. Most of the northerners who crowd there in the winter are not invalids at all. They are the cured invalids of former days, of all nations, to whom the southern winter sun has become a necessity. They are also specimens of the more restless of our countrymen and women, Anglo-Saxons, who, after wandering all over Europe for years, settle down at last for the winter at Nice, on account of its social attractions, because it is near home, and because letters reach in thirty-six hours.

Until latterly but few of this tribe of health loungers have chosen Mentone as a residence. The Mentonians were at first all real invalids, glad to escape from the gaieties of Nice, as well as from its dust and occasionally cold winds. Many, however, are becoming attached to this picturesque Mediterranean nook. It is also beginning to attract mere sun-worshippers, and a foreign population of the same description as that of Nice and Cannes will no doubt gradually grow up.

The inhabitants of Mentone are exceedingly gracious and cordial to strangers, and are doing their utmost, in a quiet southern way, to render the place agreeable to them. An elegant Cercle or club has been built in the centre of the town, which is well supplied with newspapers. It is open to visitors by subscription, and contains billiard, card, and conversation rooms, and a good sized theatre and ball-room. On the shore, in the town, there is an esplanade, or sea-terrace, constructed in 1861, and to which the name of "Promenade du Midi" has been given. It is intended to continue this terrace as far as the Cap

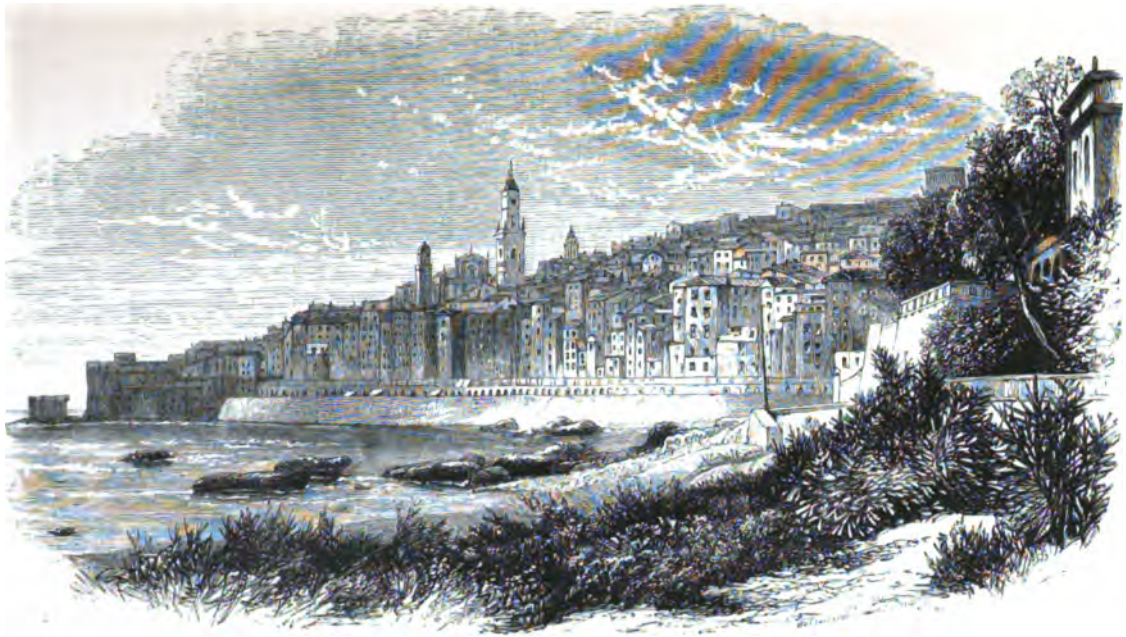
Martin, when it will make a delightful sea-side promenade and drive.

Each winter a series of elegant subscription balls are given by the members of the "Cercle," to which the visitors are invited. They are well attended by the French, and also by many members of the English community, much to the gratification of the Mentonians. Various other plans for the improvement of the place are on the tapis.

The inhabitants have invested, I have been told, nearly all their savings in building villas and suburban houses for their visitors, and can now accommodate about fifteen hundred comfortably and hygienically. These houses have been mostly built outside the town, along the sea-shore, so that they unite the climatic advantages which Mentone affords with the hygienic conditions that are equally, indeed more necessary. There are also some villas built, and more building, at some little distance from the coast, in the Carei or Turin valley, where it expands before reaching the sea. There is room here for a little suburb of houses away from the sea, which are much wanted. Thus Mentone is following in the wake of Nice, Cannes, Hyères, and Pau, where the residences prepared for invalids are principally suburban, that is, in hygienic situations.

In the town some of the best houses of the principal or modern street are let in apartments, or flats, furnished or unfurnished. These apartments are not so desirable for a residence as the suburban villas, but they are much more reasonable in price.

During the last year or two, I am happy to say that a considerable amount of attention has been devoted by the press at home to the hygienic state of southern health-resorts. As I consider myself in a great measure the



MENTONE (THE OLD ITALIAN TOWN).

originator of this feeling, being the first author on climate who has made hygienic conditions the chief basis of his researches, I am gratified to find that public opinion is beginning to awaken to these vital questions. One or two writers, however, have mentioned Mentone as more decidedly deficient in this respect than other sanitaria on the coast; a most unfounded and unfair mistake. So far from this being the case, I do not hesitate to say that the hygienic state of Mentone is much better than that of any other sanitarium between Marseilles and Genoa, not from any peculiar "virtue" on the part of its inhabitants, but because its population, native and foreign, is smaller.

The drainage of large towns involves one of the most difficult problems of modern civilization, one of as much importance to us in our northern isle as to the inhabitants of southern Europe. In the small primitive agricultural towns of the Ligurian coast and of the south of Europe generally the want of main drains is not felt. All the inhabitants are usually landed proprietors. Olive and Lemon trees, even in the sunny south, will not bear crops of fruit without manure, and where is it to come from in countries where there is little or no pasture unless it be from the homes of the proprietors? Hence, at Mentone, and elsewhere, before the advent of strangers, the household drainage was everywhere scrupulously preserved, placed in small casks hermetically closed, and taken up to the terraces on the mountain side every few days by the donkey which most possess. There a trench was made round the base of a tree, the contents of the tub mixed with the soil, and the trench closed. Such is the primitive system followed also throughout Corsica outside of the two or three large towns. I have repeatedly been in what may be called feudal residences in the mountains of that lovely island where no other system is known, and who can say

that it is altogether bad? Is it not deodorization by earth, the return to the earth of all excreta, the solution in country places of the health question "What is to be done with it?"

When, however, hundreds, nay thousands, of strangers pour into these little country towns, as they have poured into Hyères, Cannes, Mentone, and San Remo, where large hotels are built each containing more than a hundred people, and numerous villas occupied by large families, the state of things alters at once. Main drains, with collaterals, were not constructed before because they were not wanted. Now that they are wanted, are they the right thing? If made, the only possible outlet is the sea-shore, and a very small amount of drainage thrown into little sheltered bays in an all but tideless sea like the Mediterranean would soon reproduce the polluted shores of Naples.

After mature deliberation, I have come to the conclusion that for villas and hotels, in gardens of their own, a good-sized cesspool, isolated from the house, with a sound ventilating air-shaft run up alongside the chimneys to the top of the house, and a good manure pump attached to it, is the best plan to deal with the difficulty. This is what is attempted, but often imperfectly carried out, in these southern villas. Often there is no ventilating shaft at all, or the latter is not air-tight, and thus foul air passes into the house by the closets or through the walls. Then such a thing as a manure pump is generally unknown. On some fine moonlight night the cesspool is opened, a little tub tied to a long pole is put down, and the contents are laboriously ladled into small casks. In the house in which I reside I made the landlord a present of a manure pump from London, and now they do in one hour what used to take them two nights, and with one-twentieth part of the annoyance to the community.

This difficulty about drainage follows man everywhere, and possesses as much importance in England as on the Continent. London physicians are constantly sent for into the country to see cases of malignant disease, fevers, diarrhœas, which we know are the result of bad drainage, and that in elegant country residences belonging to the gentry and nobility. It is a question whether the water out-of-sight-out-of-mind system, which has made us so fastidious on this score, has not done more harm than good. In nearly all modern country houses the closets are connected with what are called "percolating cesspools." The fluid contents sink into the earth, and the solid alone remain, merely requiring to be cleared away every year or two. By degrees the soil that separates the cesspool from the water level loses its deodorizing power, and the fluid drainage contaminates the water of the adjoining well. Then come fevers, putrid sore-throats, diphtheria, dysenteries, which surprise every one in "so healthy a situation." I believe myself that the only perfectly safe drainage system for a country residence in England is either the old-fashioned garden closet of our farming population, regularly deodorized by earth according to Mr. Moule's plan—a decided improvement on the past—or a Roman cemented cesspool with a manure pump at a distance from the house. From this every day or two an amount of drainage equal to what enters should be regularly pumped and applied to the garden or land.

The only way to prevent towns, in such situations as the Genoese Riviera, becoming unhealthy from the drainage of a redundant population is for them to remain small. It is therefore to be hoped that the winter emigrants from the north will disperse themselves over the entire Riviera, finding out and colonizing new sites. One convalescent hospital, with 300 inmates, on a heathy common, such as that of

Walton-on-Thames, is salubrious and health-giving. Put four, with a thousand inmates each, on the same locality, and it becomes a question whether it would be worth while for them to leave London. The excreta of man are poisonous, and all agglomerations of men tend to breed disease. The fallen soldiers of civilization, the sick and ill from towns, should seek the country, trees, naked rocks, sparsely-inhabited districts. As an invalid myself, I would rather pass the winter in the pure air of Dartmoor than in the contaminated atmosphere of large, filthy southern towns like Naples, Rome, and Malaga, where the average duration of life is low, where the healthy and vigorous cannot reach the ordinary medium duration of man's existence. By thus colonizing a large area, likewise, the element of competition will be brought to bear, and it is the only means of putting an end to exorbitant demands from whomsoever they may come.

Mentone as an English colony was, I may say, founded by the Rev. Mr. Morgan, an English clergyman, who settled with his family at Mentone in 1857, built a house there, and may thus be considered the father of the English settlement. The Church service was for some years performed in a chapel made by throwing several rooms into one, in an old "palace" on the sea-shore, reached by thoroughly Italian streets—alleys we should call them. One of the residents, Mrs. Usborne, a relative of Mr. Morgan, presented, in 1862, a valuable site in the eastern bay. A considerable sum of money was collected during this and the preceding winter among the English, and the church was at once commenced. It was completed and opened for divine worship in 1863, and will hold above three hundred persons. Mr. Morgan has recently resigned his chaplaincy, to the regret of all, and the Rev. M. Brock, of Bath, has been appointed to succeed him.

The fact of this church having been built at an inconvenient distance from those who reside on the western side, has led to the nomination, by the Bishop of Gibraltar, to the chaplaincy of the western bay, of a second clergyman, the Rev. W. Barber, incumbent of St. John's, Leicester, a much esteemed minister of the Anglican Church. Since Mr. Barber's incumbency, a second, more elegant and consequently more expensive, church has been erected in the eastern bay. It is built in the early style of the 14th century, of stone of the country with Arles-stone dressings. The design contemplates the erection of an aisle when the numbers of the English population require further accommodation. At present there is room for 300 persons. It is a fair specimen of an English church in a foreign country. Owing to a considerable expense having been incurred by the erection of a Gothic structure in a country where no such buildings are now thought of, there is still a debt on the church, to extinguish which the contributions of future and past visitors are required.

The architect was W. Barber, Esq., son of the Chaplain, who gave his services gratuitously. An excellent organ has been erected in the church by Nicholson of Worcester, and proves a great acquisition.

The town of Mentone has presented to the Protestant community a plot of ground for a cemetery adjoining their own. It is situated on the eminence that crowns the old town, where a fortified castle reared its head in former times, the ruins of which may still be seen. It is a peaceful, picturesque spot, and is already the last home of some whose memory is dear to Mentonians. It has been surrounded by a wall at the expense of the Protestant congregations, and a small mortuary chapel has been built, to which the mortal remains of those who have died

in hotels can be removed and kept as long as the relatives wish. There is no law that renders prompt burial imperative in France. The law only rules that no person shall be buried in less than twenty-four hours after death certified by a medical man. But in hotels it is difficult to resist the "custom" of the country, which is in favour of prompt burial.

A few years ago Mentone was merely a small Italian town, like the other towns on the Riviera, with but little power to supply the wants of foreigners, and especially of the English, who, wherever they are, expect to be made comfortable. Being accustomed to fare well at home, many of our countrymen when abroad, especially the untravelled, fall into a state of extreme despondency if called upon to bear with coarse meat, sour bread, and bad butter. Every winter, however, has improved the markets, and now good bread, meat, poultry, eggs, and butter, are to be had, although sometimes only with a little trouble and contrivance. Each winter the supplies have improved in quantity and quality, and this will no doubt continue to be the case, especially since the road to Sospello has been completed and has opened out Mentone to the Alpine districts, from which it was formerly separated by its barrier of mountains.

The principal reliance however is still on the markets of Nice, and of Ventimiglia, a town of six thousand inhabitants, situated, as we have seen, seven miles more to the east. The Mentonian amphitheatre itself produces little if anything beyond olive oil, lemons, oranges, and a few vegetables. The only good butter comes from Milan. Butter is made in the mountains, but probably not with the care and scrupulous cleanliness that are indispensable to insure its quality. That produced in the extensive pasturages which surround Milan, is well known all over the north of Italy, and is really very good. It comes by

steamer from Genoa to Nice twice a week, and is supplied to Mentone from thence. Poultry reaches from all parts —from the mountain regions around, from the coast towns, and even from Turin. Many fowls, turkeys, ducks, are brought by the diligence which travels daily between Turin and Nice, passing over the Col de Tende. Game is to be had, but is expensive, with the exception of hares, which are reasonable in price.

Fish was scarce and dear before the railway was opened to Nice. Now it comes in great abundance, by rail, from the Atlantic to Nice, and reaches Mentone in a good state of preservation, once the cool weather has set in. Thus soles, turbot, oysters, are all but daily obtainable.

The mutton is furnished by the surrounding mountain regions, and is really good. I have been told by Scotch gentlemen, good judges in such a case, that it is equal to the black-faced mutton of the Highlands. The lamb is killed too young, but is still very tender, and good food for invalids. The veal is also killed young, and is good. The beef is sometimes good, at others indifferent, as it is likely to be in a country where there are no pasturages, and where it must come from a great distance, principally from the plains of Piedmont. As the poor cattle have to walk all the way, along the coast or over the mountains, they are, of course, lean on their arrival, however good the breed, and it would not pay to fatten them. In former days the inhabitants of these regions seem to have been quite satisfied with the flesh of old cows and oxen.

The expense of living at Mentone has all but doubled since I have known it; that is, within a period of ten years, and is now quite as high as at Nice. This is, however, easily explained by the more luxurious style of living, and I cannot say that the inhabitants of Mentone are to blame.

House rents have risen very considerably, owing to the demand having been very much greater than the supply, which raises prices all the world over. Many houses are now building, or in contemplation, which will no doubt tend to diminish rents, or at least to prevent further rise. Moreover, the neighbouring town of San Remo, also a good winter station, is beginning to be alive to the money value of foreign residents, and is making great efforts to please and secure them, opening hotels and building villas, which will create a salutary diversion.

The cost of living has, thus, increased, but then the markets are infinitely better supplied, which accounts for the change. As I have been told by Mentonian hotel keepers, the dinners we positively require and exact every day at the hotels and "pensions" are to them festive dinners, which they never dream of unless to welcome friends for a marriage or a baptism. To provide this high standard of food to many hundred strangers, the country has to be ransacked for a hundred and fifty miles around; Genoa, Turin, Milan, Nice, are all put under contribution. In other words, our standard of living, and that of our American cousins, is very much higher than that of continental people in general, and especially of the inhabitants of southern Europe. We are so ready, likewise, as a nation, to go to any feasible expense to obtain what we want, that we inevitably double local prices wherever we settle in any number, and that all the world over.

There is an English grocer established at Mentone, Willoughby by name, who keeps a store of groceries and English delicacies. He acts as house agent, and any application for information addressed to him on the subject of houses, apartments, or anything else, would meet with immediate attention. There is also a large bazaar or store kept by an enterprising Mentonian family—the

Amaranthes—in which every imaginable article necessary for comfort or luxury is to be found.

As year by year the number of winter visitors and residents increases, their wants and requirements become better supplied; the invalid population itself partly providing for them. Thus every winter brings us invalid professors and artists, willing and able to make themselves useful. There is also a French communal college, the professors of which are all well educated, intelligent men, who teach French, Italian, and classics. Two gentlemen receive private pupils—Dr. Müller, a German gentleman, a good English scholar, accustomed to tuition, and married to an English lady, and C. M. Barber, Esq., a highly qualified man, son of the Chaplain of the Western Bay Church.

For some years there has been a Book Club in connexion with Mudie's, which works very well. New books are received in November and January, and at the end of the season the surplus funds are employed in the purchase of some of the more permanently valuable works. There is already a very fair collection of modern books in hand, as the nucleus of a library.

Mentone offers great attraction to invalided artists, for they can both attend to their health and study their art in midwinter in the open air. The scenery is glorious, and the play of the sunshine and of light and shadow on the mountains, on the clouds, and on the sea, produces ever-varying effects, which entrance the artist's eye. Sometimes their professional services can be enlisted, and landscape, drawing, and painting classes are formed.

A winter passed at Mentone is a drama, a little epitome of life. The place is so small, so separated by its mountain barriers from the rest of the world, and the number of resident strangers is so limited, that a kind of common

tie binds them together. This feeling may not extend to the entire foreign community, but it is very strong among the members of the same nation. It is the same feeling of solidarity, of a common origin and object, that exists among the passengers of a ship on a long sea voyage. It does not, of course, include passing strangers, the visitors from Nice, and those who only remain a few days or weeks in autumn and spring, on their way to or from Italy; they are looked upon as strangers. The true Mentonian family is composed of the winter residents, of those who have made up their minds to spend six months in the happy, smiling Mentonian amphitheatre.

In October the question is—who is coming? In November nearly all the winter residents have arrived, and have located themselves. Friends find each other; unforeseen points of contact "at home" are brought out, and little groups are formed of intimates, of those who have the same ideas and sympathies. A kind of general notion also begins to get abroad as to who is the invalid in each family, and of the degree of illness.

Owing to my recommendations having been followed by my medical brethren in England, very few extreme hopeless cases of illness have been sent out these last few winters, and there have been few or no casualties among the English during the first months. But it is very different with the French.

By most of our countrymen and women the order to winter in the south is considered a boon, an opportunity of indulging the darling wish of seeing the world, and a real consolation in illness. To the French, on the contrary, it is the last drop of bitterness in the cup of sorrow. The French cling desperately to home, and to their own country, in illness as in health, and can with great difficulty be persuaded to leave, however severe their malady.

Perhaps, also, their medical men have not the same faith in change of climate that we have. Hence, each winter, I see French patients arrive in the last stage of phthisis—so ill, indeed, that their bearing the journey is a subject of surprise. A very few weeks after their arrival the last spark of vital power gives way, and they fall, like autumn leaves before the first blast of winter. They are gathered to their fathers, and the first wail of lament arises on the southern shore, where they have arrived only to die.

Then comes the close of the year, Christmas, with its home associations, and the new and wondrous sight of summer sunshine and Lemon blossoms, of large dragon-flies, and of other insects, pursuing each other in the sun, instead of the sleet and snow and gloom which we remember, and of which we read, in the fatherland. Sometimes, however, snow tips even our mountains, and reminds us of home. But the contrast is then all the more striking, between the snow-crowned mountains which girt us, and the summer sunshine and summer vegetation by which we are surrounded. Later, comes the new year, welcomed at Mentone as in France, and the festivities of the Romish Church. Lent, the Holy week, the Carnival, are all celebrated according to the traditions of the Middle Ages, in a very picturesque manner, by the native population, as in the large towns of Italy.

About the month of February the English community in its turn begins to suffer. Some of the invalids have struggled in vain for health and life. Change of climate, medical treatment, the devoted affection and tender care of friends, have in vain battled with the angel of death. His approaches although slow have been sure, and this life has to be abandoned for a better. These deaths cast a gloom on all the community. The departed have endeared themselves to the survivors; they have lived

amongst them, have shared their joys, their sorrows, their exile feelings. The loss is felt to be a common loss; it is that of the passenger who has lived for months in the same ship, sat at the same table, walked the same deck.

At last March and April arrive, the glorious southern spring, the real spring of the old southern poets, of Homer and Anacreon, of Horace, Virgil, and Lucretius. Our own northern poets, unconsciously imitating their Greek and Roman predecessors, describe spring as it is seen in Greece and Italy, not as it occurs in our boreal climate. Hence the feeling of irritation we all experience when every year with us spring arrives, and instead of balmy zephyrs and sunshine, with a profusion of Flora's companions, it only brings cold, biting north-east winds, often with sleet and snow and a frost-bound soil. Here, truly, with the exception of a few days of south wind and rain in March, the poetical spring has arrived. The Olive and Orange terraces are enamelled by nature with real garden flowers, and day after day troops of visitors, principally English, may be seen returning from mountain excursions, flower laden.

I would, in passing, earnestly request visitors not to pay the children and the donkey-women for seeking and bringing them flowers. Some of our more wealthy residents do so occasionally, without reflecting that by thus acting they are giving a market value to wild flowers. The result has been felt already. Peasants, who formerly delighted to allow children and strangers to gather the violets and flowers of no value whatever to themselves, begin to guard them jealously, and to drive off all who attempt to pick them. Were this to become general, half the charm of the mountain walks would be destroyed. I would also urge on all not to pull up flowers by the roots, or to allow children to do so; and

not to wantonly destroy and deface flowering shrubs, or to pull up rare Ferns not wanted for preservation. Otherwise the mountain valleys and terraces will soon become, in all accessible regions, a wilderness, and grow nothing but the vegetables sown in them.

One of the great charms of a residence in the more sheltered region of the Riviera is that wild flowers, as we have seen, may be found throughout the winter. At the same time, until March has arrived, they do not grow with such profusion as to take away from the pleasure of searching and finding. It is singular that the love of flowers should characterize the two extremes of life, early childhood and advancing years. Between the two there is a stage of feverish interest in the world and its doings, that generally takes the mind away from the observation of nature and her works. The child cares not for kings or empires, for ambition or its toys, so it pours out its love and enthusiasm on "wild" flowers. The old man who has gone through all the pleasures and excitements the world can give, often returns to the joys of his childhood, to nature's productions, and cultivates with love "garden" flowers, in the company of which he finds a partial solace for all he has lost or failed to gain.

It has been said, truly, that a love of flowers and of their cultivation is "the last infirmity of sober minds." Fortunate it is that such should be the case, that as we advance in life even plain matter of fact people should find some earthly joys that do not pall, for age is often "weary to bear." We have to abandon, one by one, those who fostered and cherished our early steps, who shared our hopes and fears, who sympathized with us in our success, were pained by our failure. It is the penalty we must pay for living, to lose those with whom life has been wrapped up, to find ourselves abandoned in

our earthly pilgrimage in sad succession by those without whose companionship it is no longer what it was.

As we advance in life we are like a regiment of soldiers storming a well-defended fortress on a hill. Our comrades fall at our sides, and above the din of battle sounds the voice of the officer, calling, "Fall in, *Serrez les rangs.*" So we do fall in, until if *we* get near the summit but very few of those who cheered our start remain at our sides.

The sorrowing friends of the departed are gone. The survivors, improved both in health and spirits, are more keenly alive than ever to the harmonies and beauties of the sea, the sky, the mountains, and the earth. Plans for the future, which earlier in the winter appeared too uncertain to be contemplated, are once more taken into consideration, and the journey homewards is thought of. Moreover, Nice then sends to Mentone troops of healthy, pleasure-seeking people, strong, gay, and happy. They are merely anxious for novelty and mountain excursions, and desirous to escape the March winds, more trying with them than with us.

Then comes the comparing of routes for the return home, of plans for the summer, and finally the leave-taking and departure. Most are sorry, at last, to leave the little sunny Mediterranean nook where they have spent many happy hours, and it is to be hoped recovered health, or at least arrested the progress of serious disease. In many cases more friendships have been formed than would have been formed in years at home, and the new and valued friends have to be abandoned as well as smiling Mentone. In some instances, however, as in my own, the separation, both from friends and Mentone, is only a temporary one; there is the hope of again meeting.

Such is Mentone, physically and materially. I was so

pleased with my first residence there, that I should have at once decided on returning the following winter, had it not been for the love of change, which impelled me to search for a still better climate. This desire for change is quite a feature in the invalid population met with in the south of Europe. It is in some respects beneficial in its operation, by giving the mind fresh objects of interest to take the thoughts from self, and from the many sacrifices which health exiles from home, and their companions, have to make. The difference between the smiling sunshine of a Mentone winter, a mere long English September, and our eight months' dismal season is very great, and yet there are few of the cheerful Mentonian exiles who would not gladly return to our cloud-obscured island, were it prudent and possible.

The search after an unimpeachable climate, however, is, in some respects, like that for the philosopher's stone, for the elixir of life, or for the quadrature of the circle —a fruitless one. This will be exemplified by my own experience, as detailed in the following chapters.

PART II.

THE SEARCH FOR A BETTER CLIMATE.

CHAPTER IX.

ITALY—THE TWO RIVIERAS.

"O Italy, how beautiful thou art!
Yet I could weep—for thou art lying, alas,
Low in the dust; . . . . .
—But why despair? Twice hast thou lived already;
Twice shone among the nations of the world,
As the sun shines among the lesser lights
Of heaven; AND SHALT AGAIN. The hour shall come
When they who think to bind the ethereal spirit
Who, like the eagle cowering o'er his prey,
Watch with quick eye, and strike and strike again
If but a sinew vibrate, shall confess
Their wisdom folly." . . . .

ROGERS' "ITALY."

ALTHOUGH pleased with my first winter at Mentone, I was anxious, the following autumn (1860), to find a still better climate, and, like most invalids, thought I might as well see the world, and thus combine pleasure and profit. Like most invalids, also, I wavered between many places.

As long as pulmonary consumption was considered a species of inflammatory disease of the lungs, a warm and rather moist winter climate, was considered right for consumptive sufferers. But now the more enlightened members of the medical profession know that tubercular disease of the lungs is in reality a malady of the blood and of the digestive system, a disease of lowered general vitality

and that death can only be avoided by the renovation of the general health. What I had to look for, therefore, was a dry, sunny, mild winter climate, in or near Europe, presenting advantages as great, if not greater, than recently discovered Mentone.

I therefore determined this time to turn my steps towards Italy, and to critically examine the Eastern Riviera, Pisa, Rome, Naples, and the more southern coast of Italy. Guided by a personal knowledge of the country, by the information acquired during the preceding winter, and by the reports of previous observers and writers, I felt sanguine as to finding in Italy an "Eldorado" combining all the advantages of which I was in search.

In former days, in the days of health and strength, Italy exercised over me, as over all those whose minds are imbued with the history of the past, an indescribable fascination. Several times I escaped from the busy scene of professional life, and rushed to visit its cities and plains. Its classical, historical, and artistic souvenirs and attractions threw over it a charm that never palled. I then purposely threw aside the physician, in order to see nothing but ruins, battle-fields, paintings, and statues. Sickness and human decay appeared a profanation, and I strove to forget them, to bring back none but pleasurable reminiscences.

Naples was the southern city, lying on the lovely bay where rises fire-crowned Vesuvius, where the revealed cities of Herculaneum and Pompeii, Baiæ, the Islands of Capri and Ischia recall a thousand recollections. Rome was the former queen of the world, the cradle of Christianity, still studded with innumerable vestiges of its ancient grandeur. Florence was "La Bella Firenze" of Dante, the home of the Medici, the abode of countless artistic treasures. Pisa was the birthplace of Galileo,

where the lamp that first revealed to him, when a boy, the laws of the pendulum is yet to be seen oscillating in the glorious cathedral. Whilst Genoa was the proud commercial city of former days, still grandly overhanging the sea it once ruled, still full of monuments and palaces.

This time the scene had changed. I returned to Italy an invalid in search of health, and the arts sank into insignificance, whilst hygiene, climate, and health questions ruled the day. With views thus altered, different impressions were produced, and important medical facts became evident, which, as a tourist, I had not perceived.

I entered Italy by Mount Cenis, and although it was only the 20th October, there was a great deal of snow on the mountains, and it was very cold in the higher regions. Indeed, the weather was much too cold for chest invalids, who, if they cross the Alps should do so much earlier.

Genoa is not so much a medical station as a resting-place for travellers and invalids entering or leaving Italy. Its situation is admirable, at the angle of the gulf formed by the eastern and western Rivieras, protected by mountains, and exposed to the south-western sun. Hence it is very warm in summer, but in winter the protection afforded by the Apennines is incomplete, owing to a "defect in the armour." Behind Genoa the Apennines present valleys, through which the railroad from Turin has managed to find its way, and through which also the north-east wind reaches the town when winter has fairly set in on the plains of Lombardy. Still the protection is sufficient to make the climate perfectly different in autumn and spring. On the 22nd of October there was a heavy cold fog when I left Turin, which continued until we reached the mountain passes, completely obscuring the horizon. Winter was everywhere, the trees leafless, and the soil denuded. The fog had left us when we emerged from the first tunnel,

and the air had become clear, cool, and bracing. On escaping from the last, near Genoa, we had gone back to midsummer; the sky was blue, the sun bright, the air warm, the windows and doors were wide open, and the out-door life of Italy was in full operation. It was indeed difficult to believe that half an hour—the passage of a tunnel through a mountain—could have wrought such a change.

Genoa presents two other disadvantages: it is a densely populated city, and, like all Italian towns, badly drained, and unhygienically built. In all large towns in Italy, Turin excepted, the streets are very narrow, generally only a few feet wide. The object was no doubt twofold: firstly, to provide for the exigencies of fortification, and secondly, to exclude the sun, the summer enemy. The towns and villages now found in the south are all historical; there are no cities like the busy thriving Lancashire marts, the product of manufacturers' activity in modern times. The towns and villages are those of the middle ages, and as such circumscribed within walls and fortifications, and perched upon heights for protection, just as they were hundreds of years ago. Such a style of architecture is proverbially unhealthy, especially in the south, amongst a population to whom the cleanliness and the decencies of modern civilization are as yet but little known. To crown the whole, all the principal hotels at Genoa are on the port, the receptacle of what drains there are, and tideless, as are all ports in the Mediterranean.

Owing to the above cause, although to the traveller one of the most picturesque and interesting towns of the Mediterranean, the native city of Columbus is not a healthy abode. The invalid, therefore, had better not prolong his stay, unless he have the command of a garden-surrounded villa in the suburbs. In the hotels it is better to choose the higher stories, as the higher the rooms

occupied the purer the air, and the less likely is the occupant to suffer from atmospheric impurity.

I must remark, that throughout the Continent the traveller, ill or well, should leave the window more or less open at night, the air of the staircases and passages being all but invariably very impure, even in the best hotels. If the window is not opened at night, the bed-chamber is supplied from this vitiated source, foul air is breathed, and typhus fever often generated. I firmly believe that the numerous travellers who every year mournfully die all over the Continent of "gastric fever," as it is amiably called, away from home and relations, are mostly poisoned in this way. If the window is even slightly opened, pure air is admitted, instead of the foul air of the passages, and this danger is avoided, or at least neutralized. Pure air can do no harm, night or day.

Descending the eastern Riviera, the first town or village of any importance is Nervi, a station much esteemed by the physicians of the north of Italy for consumptive patients. Nervi is better protected than Genoa by the mountains, which approach nearer the shore, and being small, principally composed of one long street along the shore, it is free from the hygienic objections to which Genoa is exposed. Nervi does not, however, appear to me to present any peculiar recommendation to strangers. The vegetation is that of the entire Riviera coast, and does not indicate an exceptional climate. The position is not peculiarly picturesque, and I believe the accommodation to be found is essentially Italian, which does not in any respect satisfy the English. There is, however, a boarding and lodging house, under the direction of an English physician of Genoa, principally supported by the English. The proximity of Nervi to Genoa and Turin appears to be its principal recommendation.

Chiavari, the next town, is situated along the sea-shore, in pretty much the same conditions as Nervi, and presents no feature calculated to arrest attention.

Sestri, further on, is an exceedingly picturesque town, on the margin of a small bay, and at the foot of a high spur of the mountain chain, which runs into the sea. But it faces the north-east, and is screened from the south by the spur in question, so that it loses all claim to be considered a sanitary winter station.

The road, which gradually becomes very bold and picturesque, then crosses the mountain, and descends on Spezzia. I had retained from former travel a very high idea of the beauty of La Spezzia, and was quite prepared to make it my winter residence had I found the climate bear scrutiny; such, however, was not the case. The town is situated at the foot of a magnificent gulf seven miles in depth, bordered on each side by mountains of considerable height. The mountains also extend far inland behind, but they are not sufficiently high to intercept the north-east winds. As a necessary result of this mountain-surrounded situation, at the base of a deep, narrow gulf, there is a great deal of rain throughout the winter, and the weather is often rather cold, as shown by the vegetation. Moreover, there are marshes of considerable extent at the foot of the hills which surround the town, and in the autumn malaria is rife. I therefore determined to pursue the journey.

Between Spezzia and Pisa there is only one spot worth mentioning, and that is Massa Carrara. The town is small and clean, open to the south-west and protected from the north-east by the high mountains in which the marble is worked. The Orange-trees appeared larger and healthier than on any part of this coast. I should think it must be an exceptionally good winter station, and there

is a good, clean, comfortable hotel. But it is a dull little place, having no view of the sea, although near it. Neither here nor elsewhere along this coast, either, did I see the luxuriant Lemon-groves of Mentone. Indeed, the protection afforded by the mountains which form the background of the Mentone region is infinitely superior to anything met with along the eastern Riviera between Genoa and Pisa. The vegetation is, consequently, much more southerly, and indicates a much higher winter temperature.

This time I examined Pisa attentively under the climatic and hygienic point of view only, and left it with a most unfavourable impression. Pisa is situated in the open plain, some miles from the mountains which protect it. This plain does not show the slightest evidence of southern vegetation; it does not even contain the Olive-trees so common along the coast and on the adjoining hills. Nothing is seen but the dry mop-headed deciduous Mulberry, with Vines, like old ropes, trailing from them. The town is surrounded by a very high wall, which must impede ventilation; the streets are narrow, sunless, damp, and cold.

The far-famed Arno, which passes through the city, forming an arc, is a mere ditch or moat, like the moat of an old fortified town in the north of France, with stones instead of grass, and a sluggish dirty stream meandering at the bottom—the far-famed Arno, a kind of open main-drain. The quarter of the invalids is a quay on the bend of this moat river, about a mile long, and bordered by gloomy fourth-rate houses. Here the invalids are condemned to walk up and down, looking at the stones and dirty water below, occasionally swollen into a yellow torrent by the rains. The sunless streets are so chilly that chest patients are seldom allowed to go into them. The

country around is a mere dull, denuded plain, which even a southern sun cannot enliven. Moreover, it is often very cold at Pisa, more so than at Rome; there are often fogs on the Arno, and it rains constantly in winter.

To crown all, Pisa is an unhealthy town to its inhabitants, like Genoa, Florence, Rome, Naples, and all these ill-built, ill-drained, dirty, wall-cramped southern cities. The average duration of life is twenty-nine years at Pisa and Florence, and twenty-eight only at Rome and Naples; whilst in Paris it is thirty-nine, and in London forty-four. For corroborative evidence on these points I would refer to the chapter devoted to Pisa in Dr. Carrère's highly esteemed work, entitled "Le Climat de l'Italie."

All experienced physicians attach extreme importance to the influence of the mind over the body. A cheerful, happy frame of mind favours the digestive processes, tends to promote sleep, and thus counteracts the influence of disease. The dreary, cheerless monotony of stones and mortar at Pisa, with its ditch river, must exercise a most unfavourable influence on invalids exposed to it for month after month. Once the magnificent cathedral, the far-famed leaning tower, and the Campo Santo, or cemetery, have been explored, there is literally nothing for the invalid to do. There is, it is true, the university, where many learned and celebrated professors hold forth; but its scientific collections and its lectures are only interesting to students, or to men of scientific and literary tastes. Even to them I question whether the university would not be a snare instead of a boon. Work of any kind, mental or bodily, and close ill-ventilated lecture rooms, they should avoid, unless it be a lounging botanical or geological ramble in the open air.

Florence is not a winter residence for invalids; it is a mountain town, and much too cold. From Pisa you pass

through thirty miles of valleys and mountains to reach it, and once there, you are surrounded by mountains on every side, many of which I have seen covered with snow early in November. The north wind, or tramontana, is also very trying to invalids when it blows, which is often the case.

Rome is a winter residence for healthy tourists, not for invalids; malaria reigns there, more or less, all the year. Every winter it makes victims, even among the healthy, and the medical practitioners who have been settled there for years say that malaria fever complicates, more or less, nearly every form of disease, slight or severe, that occurs, even during the winter months. When the north wind—the tramontana—blows, which is not unfrequently the case for several days together, it is very cold. Moreover, invalids should scrupulously avoid churches, galleries, festivities, and parties—and what is Rome without these, the life of the Eternal City?—merely a temptation and a snare. I may add, that all that has been said about the dirt, defective drainage, and general unhealthiness of Genoa and Pisa, equally applies to Florence and Rome.

Thus I had to continue my pilgrimage, and started from Civita Vecchia for Naples. I did not intend to remain there, but to go on to Salerno, the celebrated medical school of former days, which is near, and admirably situated. I also wished to carefully examine the bay of Gaeta, of the smiling and all but tropical luxuriance of which I had retained a very pleasing recollection. These plans, however, were not to be carried out. I again saw the bay of Gaeta, it is true, but under circumstances which made any exploration an impossibility.

Twelve years previous, after making a pleasure tour in Italy and visiting Naples for the first time, with unclouded delight, I started for Leghorn in an old steamer called

the *Virgilio*. It was a beautiful autumnal afternoon, and the magnificent bay of Naples was perfectly calm; like a mirror. As we steamed gently past old Vesuvius, the classical coast of Baiæ, and the beautiful Island of Ischia, we all remained on deck, entranced with the glorious scene. On passing out of the bay the bell rang for dinner; no one dreamt of being ill, and we all sat down, a merry English party, for nearly all were English tourists returning to fatherland.

But alas! unconscious victims to Neptune, we knew not that the September equinoctial gales were due, that the barometer had fallen half an inch that afternoon, that the captain and seamen were anxious, and that we were destined to dire torments. When we reached the deck again the scene was already changing. The sea and wind were rising, and before nightfall we were in one of the worst storms that had been known for years. Our steamer was old and slow, not able to accomplish more than six knots an hour in fair weather. With the wind all but dead against us and a raging sea, her performances were anything but satisfactory. In twenty-four hours we only made about a hundred miles, and the storm continuing with unabated fury, and our fuel being all but exhausted, we had to turn about, to retrace our steps, driving before the wind, and to make for the port of Gaeta as a refuge.

Gaeta we eventually reached, to our inexpressible satisfaction, about seven o'clock in the evening of the following day, and fondly hoped that we were at the end of our troubles. But in this we were very much mistaken. The port is a military port, and according to the rules of those days, at 6 P.M. all communication with the shipping ceased. So strictly was this rule enforced, that although thus driven in by stress of weather, with women and invalids

on board very ill, we were not allowed to land. Provisions and coals were even denied us until the opening of the port the next morning, and until orders from the government at Naples, twenty miles distant, had been received. We were thus obliged to spend the night riding with one anchor in a perilous, exposed anchorage, with fires out for want of fuel, and in great danger of being blown out to sea and dashed against the rocks. As to provisions, if received, but few could have done honour to them.

By ten o'clock next morning, orders had been received from head-quarters to allow the "very dangerous crew" of the *Virgilio* to land; so boats were sent to the ship, and a file of soldiers were drawn up on the beach. We were then landed between two rows of the soldiers, and marched up on foot, like so many convicts, to the town hall to have our passports overhauled. The storm was over, the sun shining gloriously, and by this time, after a forty-four hours' fast, we had become ravenous, and implored our military escort first to march us to a café, for breakfast. Our entreaties and objurgations were, however, all in vain. We were, I presume, considered dangerous people, vile liberals, revolutionists, not to be allowed to come in contact with the loyal inhabitants of Gaeta. We were therefore dragged ruthlessly before the "authorities," thence taken in the same military, or convict style to the gates of the town, bundled into carriages, and with a soldier on each box driven to Mola di Gaeta, a village at the bottom of the bay. Here we arrived at midday, and, free at last from our escort, were allowed to repair the wants of nature. This repast was, I think, even more mirthful and pleasant than the one we had partaken of some forty-eight hours before, in the bay of Naples. We were all sick of the sea, and separated to find our way homewards as best we could.

I and two of my companions determined, as a compensation for past hardships and dangers, to make a comfortable and leisurely progress. We got a carriage from Naples, and posted all through Italy, merely travelling between breakfast and an early dinner. This most enjoyable journey from Gaeta to Chambery has remained in my memory, marked with a white stone. The weather was lovely, the country glorious, my companions cheerful, witty, and pleasant, and every now and then the sight of our late enemy the sea added a very delightful sense of security to our enjoyment of the journey. I may add, that from that moment I became a most irreconcilable enemy to King Bomba, of whose hospitality to shipwrecked travellers I had had such a charming illustration.

Since this memorable expedition I have often made coasting voyages on the Mediterranean, but I have never again been caught in a storm. Firstly, I avoid the proximity of the equinoctial gales; and secondly, I carry an aneroid barometer with me, and consult it for two or three days before I embark, with the assistance of Admiral Smyth's and Admiral Fitzroy's instructions. If the state of things is at all suspicious—that is, if the barometer is falling gradually—however fine, I remain on shore. I have thus several times avoided severe storms which I should otherwise have encountered.

On the present occasion we had left Civita Vecchia overnight, on one of the French steamers, for Naples. At five o'clock in the morning we were awakened in our berths by the steward, who told us that the steamer had run into Gaeta with despatches for the French fleet, and that it was worth while going on deck. We all dressed rapidly, and when we reached the deck a sight met our eyes which can never be forgotten. We were in the well-remembered bay, the haven of former days, and I could

have fancied that I was still in the *Virgilio*, at anchor, before the large promontory-crowned town. The night was clear and starlight, and so illuminated by a moon nearly full, that every feature of the mountainous coast came out clearly, as it had done during the dreary night-watch in times gone by. But the scene was very different, for one of the great events of modern Italian history was being enacted before us. My former inhospitable host, Ferdinand the First, of inglorious memory, was dead, after suffering in his latter days, through dire disease, some of the agonies he had inflicted on so many innocent political victims. His son and successor, Ferdinand the Second, as a retribution for his father's crimes, was cooped up with the last remnant of his army in the fortress of Gaeta, then before me.

Gaeta crowns a rock several hundred feet high, which terminates a promontory, the northern limit of the bay and port of that name. The walls, the forts, the houses and the churches, built of white stone, shone in the calm moonlight. There were scarcely any lights to be seen, and the town appeared calm and asleep, as it were. But we knew that few of its inhabitants were asleep that night, for great events were taking place. Thousands were lying sick with fever and dysentery within its walls, and it also contained a king at bay, surrounded by a terror-stricken court—a king whose crown was escaping from his feeble hands.

At the foot of Gaeta, on the promontory that connects the town with the mainland, were many bivouac fires. They indicated the encampment of some thousands of royal troops, for whom there was no room in the town, and whose presence also served to protect it. Then a mile of darkness, and beyond, nearer the curve of the bay, glared in the dark a more extended collection of bivouac fires,

covering the shore and hillside to a considerable extent, and indicating the presence of a much larger body of troops. These constituted the Sardinian army besieging Gaeta.

In the bay, a few hundred yards from us, lay a number of French men-of-war, brilliantly illuminated. All their portholes were open, and from each porthole proceeded a blaze of light; the guns were shotted, and the gunners were beside them ready to fire. A mile or so beyond the French fleet, thus prepared for battle, we could perceive another dark mass, formed of large ships, with but few lights; this was the Sardinian fleet. We were gazing with astonishment and interest at this dramatic scene, when a boat, manned by six sturdy seamen, left the French admiral's ship, and rapidly approached us. Several persons came on board our steamer, and we soon learnt the meaning of what was passing.

The previous day the Sardinian army had left Mola di Gaeta, and made a vigorous attack on the Neapolitan army in front of Gaeta. The Sardinian fleet had entered the bay, advanced along the coast, and supported the land troops very efficiently by its fire. The army of King Ferdinand, and the fortress of Gaeta itself, were placed in great jeopardy by the combined attack of the Sardinian land and naval forces, when the French admiral intimated to the Sardinian admiral the order to stop, threatening to fire, and sink his vessels, if he advanced. It was to support this threat that the preparations we saw were made; the gunners had been at their guns all night, ready to fire had the Sardinian fleet advanced. This extraordinary and uncalled-for step on the part of the French caused the greatest astonishment throughout Europe; it arrested the progress of the Sardinians, and was the means of delaying the fall of Ferdinand II. for several months. We carried

the news to Naples, where it appeared to excite an all but universal feeling of alarm and indignation.

Naples exhibits the concentration of all the unhygienic conditions previously alluded to. More than 600,000 southerners are living in an extremely confined space, in high houses, in damp sunless streets, in the midst of every imaginable abomination by which the eye and the smell can be offended. The drains all run into the tideless sea, or on to the shore. In the most fashionable part of the town, in front of the houses occupied by the nobility and by strangers, is a narrow public garden, the fashionable promenade, "the Villa Reale," running for a mile along the shore. On this shore eight public drains empty themselves, not into the sea, but on to the sands; thence to trickle down by slow degrees. The largest of these drains is opposite one of the chief hotels, and is usually so offensive that those who are alive to these questions always feel inclined to take a run in passing.

On the land side of the Villa Reale is the main drive, or street, "the Chiaja," and on each side of the pavement, as in most other streets, there are large slits in the road every few feet, a foot long and about an inch broad, to allow the rain-water to escape into the drains, which thus freely communicate with the exterior. It is between these shore drains on the one side, and the drain-ventilated street on the other, that fashionable Naples daily promenades, and it is by the side of this choice region that nearly all our countrymen live, and not unfrequently die.

The picturesqueness of Naples life, closely analysed, is in a great measure that of filth, dirt, and rags. The picturesque fishermen pass their lives fishing at the mouth of these sewers. The picturesque lower orders eat, drink, and sleep, as it were, in public, windows and doors open, if they have any. They are clothed in rags, which they

appear never to take off until they fall from them, and they are infested with vermin, which they scratch off each other at the street-corners. The town, moreover, is surrounded by pestilential marshes, and is built on a tufa rock, or kind of pumice-stone, so porous that it lets the rain soak in twenty feet, to give it out in dry weather by degrees. Thus, in winter, moss grows wherever the sun does not reach.

A few days after my arrival in November, the autumn rains commenced with a warm oppressive sirocco, or south-east wind. The torrents of rain that fell in the first twelve hours washed the streets and drains of their accumulated abominations into the sea. The waves and the surf, on the other hand, drove them back again and again on the shore, whilst the wind, rushing up the open drains, escaped through the rain openings in the streets, and through the open closets in the houses. The smell throughout the entire lower part of the city was awful, and a considerable portion of the population was at once affected with abdominal pains, diarrhœa, and even dysentery. I was one of the first victims, and after nearly three weeks' illness, I abandoned all idea of exploring Salerno and the South of Italy. I had only one wish, that of returning as quickly as possible to pure, healthy Mentone. I therefore embarked on a Genoa steamer as soon as the barometer showed me that it was prudent so to do—through its friendly aid escaping a violent storm,—and reached Mentone safely in a few days. There I remained during the rest of the winter.

To conclude, however, about Naples and its bay. They are most fascinating to mere healthy tourists; for they are hallowed by associations and beauties of the most varied character. But to the invalid, Naples should be absolutely forbidden. Even hardy, healthy tourists may

hesitate about a prolonged residence. They should, also, rather choose the more elevated regions of the city than the fashionable Chiaja. The defective sanitary arrangements are not the only drawbacks. When the wind is in the north-east, the Apennines in that direction are so low that it passes over them, they become covered with snow, and the cold is intense. When it veers to the south-east—the sirocco—on the contrary, the heat becomes intense, and the air, being loaded with moisture from the sea, is very oppressive. These extremes, following each other very rapidly, are most trying and unhealthy. The north-west, or mistral, also frequently blows into the bay with great violence, and is a trying, dangerous wind to invalids throughout the Mediterranean.

It was not, however, without regret that I abandoned Naples. Notwithstanding illness and suffering, I was beginning to feel the influence of its usual fascination. During illness, too, I had reperused Andersen's sun-impressed history of "the Improvisatore," and Lamartine's poetical tale of "Graziella, the Maid of Ischia." The wish became strong again to visit Pompeii, again to explore the Orange clad hills of Castellamare and Sorrento, to sail over the lovely blue bay to Capri, to the azure grotto, and to Ischia. Indeed, it required a strong mental effort to drag me from the Circean allurements of Naples back to quiet Mentone, where no great deeds have been done, where we must be satisfied with the charms of nature, and where the monuments are merely those of the earth's early career, in pre-historical ages.

At that time also the great and glorious political events that characterized the foundation of United Italy were being accomplished, and Naples was a centre of intense interest. The king, Emmanuel, made his first entrance into Naples as I was becoming convalescent, and daily

passed under my windows (Nov. 1861); the entire population were wild with joy at their deliverance from the Bourbons, and at the regeneration of their native country. I also saw the Italian hero, Garibaldi, and that under circumstances so creditable to him, that I cannot refrain from mentioning them.

He had come over to Naples to see his friend the king, and insisted on remaining incognito. He felt that the positive adoration the Neapolitans entertained for their deliverer would have led to demonstrations of the most enthusiastic character had he shown himself, and that the king would have become quite a secondary personage. He therefore went to an hotel, like a private individual, and refused during his twenty-four hours' stay to receive any deputations, or indeed to allow his presence in Naples to be made known. Naples, however, heard of his advent, and the entire city was wild to see him and show him honour. I happened to visit that very afternoon the English reading-room, which is kept by two English ladies. I found them in the ante-room, standing and conversing with two gentlemen, one of whom was Garibaldi—a mild, amiable-looking man, of middle height, with nothing of the fire-eater about him. In a few minutes he took his leave, and the ladies then told me that they had known him intimately for many years, and that that morning he had sent word that he would lunch with them in private. True to his word, he came at the time appointed, and remained two hours in their little homely parlour, eating fruit and singing songs and ditties. This little trait shows the amiable simplicity and warm-hearted faithfulness of the hero. When all Naples was anxious to fall at his feet, and the king of his making was waiting anxiously to load him with honours, he preferred devoting his afternoon to the society of two humble friends of former days.

If the fascination exercised by the bay of Naples is so great that the invalid tourist cannot possibly tear himself away, I should recommend him to make the island of Capri his head-quarters. The island is of limestone—a healthier geological formation than the soft tufa rock of Naples. The population is small, the scenery interesting, and there are several hotels where tolerably comfortable quarters may be obtained. Then there are no marshes, and the air is constantly purified by the sea-breeze. The Naples physicians are in the habit of sending convalescents there, and with the best results. In fine weather there is daily communication with the mainland by boat and steamer; but in winter, in bad weather, the communication is sometimes interrupted for weeks. The isolation is then nearly as great as that of Garibaldi at his island home of Caprera.

The island of Capri is a picturesque mass of rocks, nine miles in circumference, and two and a half in width, situated at the outside of the bay of Naples, twenty miles from that city, two miles from the eastern cape of the bay, ten miles from the western cape, or Cape Miseno. It forms a species of amphitheatre facing Naples on the north. It is a very lovely little island, jagged and irregular in outline, a perfect chaos of rocks, and a charming residence for a month or two in early autumn or in spring, but not for midwinter. The northern exposure of the island and its distance from the protecting Apennines, leave it without defence against the northern winds. Friends and patients who have wintered there, all agree that they had a great deal of rough weather to encounter, much more than on the Riviera, owing, apparently, to the complete absence of protection from the northern quarters. Its southern shore is a precipitous rock many hundred feet high.

Capri is full of recollections of Tiberius the Roman emperor, who passed the last ten years of his life there, indulging in every species of debauchery and crime. Up to his elevation to the empire, at the mature age of fifty-five, Tiberius had been known only as a great warrior and statesman, as a wise, virtuous citizen, as a good husband and father. Then, singularly, at an age when even vicious men often abdicate their vices, Tiberius, under the influence of a kind of moral insanity, threw himself headlong into every species of cruelty and sensual indulgence, and that in such a shameless manner as to raise the indignation of even this depraved age (A.D. 14).. Capri, where he retired, apparently the better to give untrammelled scope to his cruelty and passions, retains to this day the impress of his presence. The ruins of his palace, of his prisons, and of his baths are still shown. Above all, the memory of his nearly unparalleled vices remains as a kind of pall over the beautiful island. It still lives vividly, after nearly two thousand years, in the memory of the peasants who inhabit it.

Dr. Bishop—then the leading Naples physician, now practising in Paris—told me the history of a countryman, which is not only interesting, but points out a danger—a hidden rock on the path of the convalescent phthisical patient, and therefore deserves to be rescued from oblivion. This gentleman came to Naples as a confirmed phthisical invalid. Although in an advanced stage of disease he rallied, and apparently regained his health. Unfortunately he became desperately attached to a very handsome young Italian girl, below him in social rank. Unlike the hero of Lamartine's beautiful tale of Graziella, he married the object of his affections, and retired with her to live at Capri. This unwise step, however, involved him in many painful and trying ordeals. The

storm of human passions had also been roused in an unsound constitution. It was the leaky ship going to sea, and exposed to the tempest and to the hurricane. Disease returned, and made a rapid progress, and as this time nothing could arrest it, his existence soon terminated.

Leaky vessels should remain in port, where, like Nelson's old ship, the *Victory*, they may long ride with dignity on the smooth waters that surround them. The battle of life—its storms and tempests—must be left to the young and to the strong. The convalescent phthisical patient should ever recollect that he bears within him the seeds of death, that his disease may return any day, that he lives on sufferance, and should act accordingly. The actual truth should be known, bravely recognised, and thoroughly accepted.

As I have previously stated, the impression made upon my mind by the sanitary survey of the principal health towns of Italy was unsatisfactory in the extreme. The authors whose works I have read on winter climates have, it appears to me, made an extraordinary, but all-important omission. They have studied winds, sunshine, cloud, temperature, protection, and all the various elements which constitute climate, forgetting *hygiene*.

And yet, are not the laws of hygiene of more importance to the invalid than all the rest put together? Of what avail is it to place a patient suffering from a constitutional disease, such as phthisis, in the most favourable climatic condition, if every law of hygiene is violated—if he is made to live in the midst of a foul, badly-drained, badly-ventilated town, such as Florence, Rome, Naples, Valencia, or Malaga? In these unhealthy centres of southern population, where the mortality is habitually very high amongst the healthy natives, much higher, as we have seen, than in our most unwholesome manufacturing localities, what

right have we to expect the general health of our patients to rally? In reality, it would be as reasonable to send consumptive patients in the summer months to live in the worst parts of Whitechapel, Liverpool, or Glasgow, as it is to send them in winter to live in the centre of these unhealthy southern towns.

In former days, when the laws of hygiene were ignored by the medical profession as well as by the non-medical public, when fevers and plagues were merely studied and treated as inscrutable dispensations of Divine wrath, it was, perhaps, excusable for writers on climate to devote their undivided attention to meteorological questions. But now that the mist and darkness have been dispelled, that typhus fever, dysentery, and other town diseases have been traced to their causes—filth, defective ventilation and drainage,—we know that attention to hygiene is even more necessary for the recovery of health than for its retention. In choosing a winter residence, therefore, hygienic conditions should be first considered, even before warmth and sunshine.

If we are to be guided by such considerations, however, I must candidly confess that I have not yet seen a large town in the south of Europe (the health quarters of Nice and Pau excepted), the hygienic state of which is such as to render it a safe winter residence for an invalid. In most of these towns, moreover,—towns such as those I have just named,—the positions selected for and devoted to invalids are central, and owe their protection in a great measure to buildings, which secure to them the town atmosphere undiluted. Thus are explained the frequent deaths from "fever" amongst our countrymen, ill or well, residing in them, which we every year see chronicled. On the spot you are told that they have died from the fever of "the country." But this fever of the

An exception may even now be made in favour of San Remo, which participates, although in a minor degree, in the special protection met with at Mentone. San Remo is a town of some importance, about fifteen miles east of Mentone. It has 11,000 inhabitants, and many houses on the outskirts of the town that might be made agreeable to strangers. Moreover, it is in Italy thoroughly Italian, and the Italian language is spoken, although not with great purity.

The example of Mentone, the fact that land in the Mentonian amphitheatre has decupled in value within the last ten years, has awakened the proprietors of San Remo to the great money value of the northern invalids. Several new and comfortable hotels have been built, and a number of villas have also been erected for strangers. If the inhabitants will prepare for strangers, as the Mentonians have done, I do not doubt but that San Remo will share in its prosperity, and become also a favourite winter sanitarium. Although much less picturesque than Mentone, and fifteen miles further from Nice, a great drawback, San Remo deserves the patronage of winter emigrants. The climate is about the same as that of the western bay at Mentone, and no doubt all who do well at the one would do well at the other. I had hoped that it would be less expensive, but I do not find, on inquiry, that there is much difference. Nor do I think there will be at any of the Riviera towns, once they have been galvanized up to the standard required as a minimum by strangers. The expense of building, of furnishing, and of obtaining provisions from a distance, must be pretty nearly the same everywhere.

Competition, however, is wholesome, and those who meet with no accommodation to their taste at Nice and Mentone, or who wish to be actually in Italy, may safely pass on, and try San Remo. If the English colony should

THE PALM GROVE AT BORDIGHERA.

increase, the accommodation will surely improve every season, as it has improved at Mentone, and as is the case with all continental towns which are patronized by our comfort-loving countrymen.

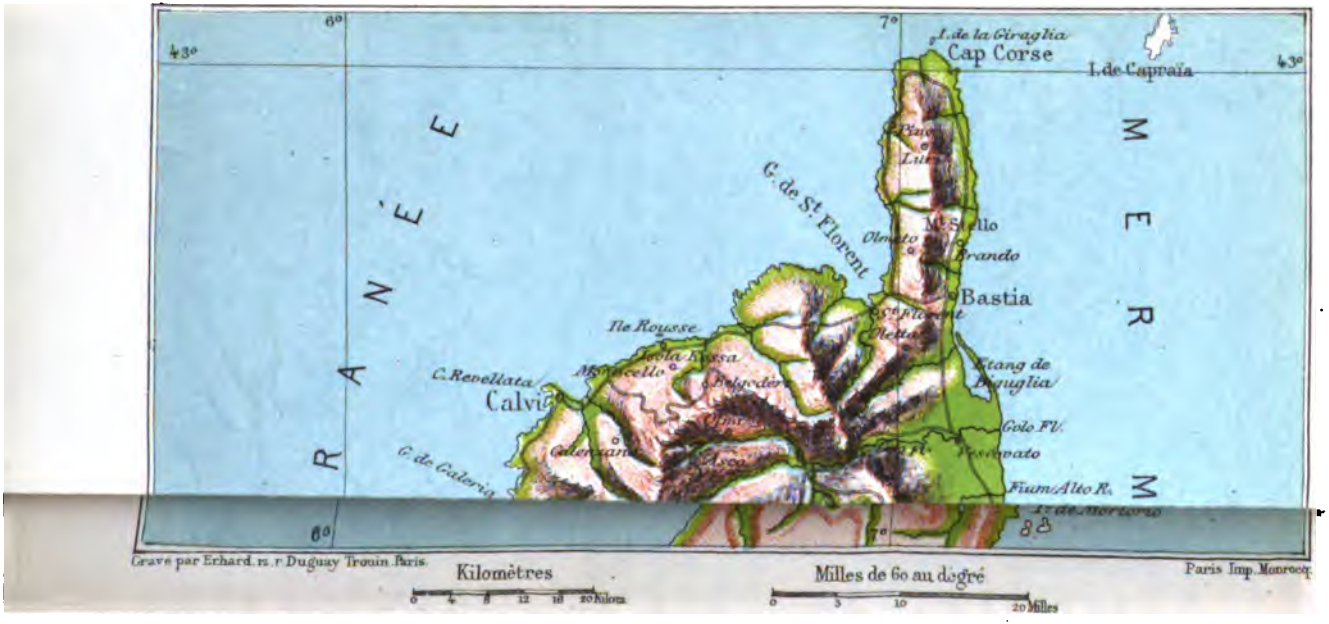
Bordighera, a few miles further on, and about eleven from Mentone, is a source of interest to all travellers, as the scene of the adventures of Dr. Antonio. The promontory, on the summit of which it stands, juts out into the sea, so as to form a very conspicuous and picturesque object all along the western coast, as far as Monaco and even Antibes. It is decidedly less so, however, on a near approach. The little town is merely one of the small cramped-up Italian towns, of which there are a score along the coast, all very much alike. The suburbs present nothing very interesting, with the exception of the far-famed Palm groves. In these groves, which surround the town on all sides, thousands of Palms are growing with truly oriental vigour and luxuriance, and give a very eastern character to the landscape. They are of all sizes, from a few feet to above a hundred, and of all ages, from a few years to a thousand or more. In the garden of the French Consul, more especially, are to be found noble and majestic specimens of this beautiful tree, many of them he told me more than a thousand years old. The spot on which they are situated was the garden of a monastery of Dominicans, in very bygone days, more than a thousand years ago. It was these monks who introduced and planted the Palm-tree in the district. Many of those existing were actually planted in this, the olden time, by the monks, of whom not a trace, not a vestige remains, with the exception of their favourite trees. The accompanying woodcut will enable the reader to form some little idea of the oriental character of the scene, which is well worth a passing visit. There is a good modern hotel at the entrance to Bordi-

ghera, the Hôtel d'Angleterre, which is very well spoken of by all who have resided in it. I may add that the Bordighera Palm groves are a favourite pic-nic resort of the Mentonians. Many of us have very pleasant associations of that kind connected with their stately shade.

The little town of Mentone was built, like all other Italian towns, for the purpose of defence. It is no exception, therefore, to the rule. Most of its older streets are sunless lanes, a few feet wide; but the visitors have nothing to do with them, and never need enter them. It is, however, cleaner than most Italian towns, owing to the great value of all refuse, as I have already stated. The people —an industrious race—have to cultivate the rock, and have no pasturage, no cattle, only donkeys and mules. They husband their manure, therefore, with jealous care, and let none escape into the sea or elsewhere.

Thus, neither the land nor the sea is poisoned, as in the larger towns of the Mediterranean coast. This is unquestionably one of the greatest health advantages of small localities. It is worth all the ruins and art treasures of Italy to the real invalid, with whom the main point is to save or prolong life, not temporary, artistic, or social pleasure and amusement.

LA CORSE (CORSICA)



CHAPTER X.

CORSICA.

ITS PHYSICAL, GEOLOGICAL, BOTANICAL, AND SOCIAL CHARACTERISTICS —ITS HISTORY—ITS CLIMATE—AJACCIO AND BASTIA AS WINTER STATIONS—OREZZA AND GUAGNO AS SUMMER STATIONS—SARTENE, BONIFACIO, AND THE EASTERN COAST.

"My dream is of an island-place
Which distant seas keep lonely,
* * * *
An island full of hills and dells
All rumpled and uneven,
With green recesses, sudden swells,
And odorous valleys driven,
So deep and straight that always there
The wind is cradled to soft air."

The Island.—E. B. BROWNING.

THOSE who pass the winter at Cannes, Nice, and Mentone, have, generally speaking, only the wide expanse of the Mediterranean before them. Occasionally, however, when the sea is calm, and the air is peculiarly clear, a bold mountain land, formed by a series of irregular peaks, is distinctly seen rising bodily out of the sea, on the far south-eastern horizon.

I shall never forget the impression this sight first produced on me. I had been some weeks at Mentone, and had sat day after day for hours looking at the open sea, which I supposed to be a liquid desert for many hundred miles, as far as the sandy coast of Africa. One morning, rising a little after the glorious Mediterranean sun had emerged from the eastern sea, I opened the window and looked out. To my amazement I beheld before me a range of mountain summits, like the Alps seen from the

plains of Lombardy. It appeared quite a glimpse of fairyland. As the sun rose higher and higher the distant mountains became indistinct, and finally vanished. This was Corsica. The irregular peaks were the summits of the Monte Cinto, the Monte Rotondo, and the Monte d'Oro, mountains from six to nine thousand feet high. I have often seen them since, but seldom with the same vivid distinctness.

The period of the day when the Corsican mountains are most frequently and most vividly seen is just before sunrise, the sun during most of the winter being rather eastward; as it leaves them, they rapidly fade and dis-

appear. Sometimes, however, but rarely, they remain apparent throughout the day. Masses of white clouds anchored on the higher mountains are often observed. That they are resting on the Corsican mountains is evident from their complete immobility. The distance from shore to shore being about ninety miles, and at least one hundred and thirty to some of the higher peaks—that of Monte d'Oro, for instance—the first or lower two or three thousand feet of Corsica cannot be seen at all, under any condition of atmosphere, owing to the sphericity of the globe. When thus visible from Mentone, the view becomes much more complete, much grander, if the higher levels are reached. From the top of the Berceau the entire range of the Corsican mountains is seen.

These occasional glimpses of a far-distant land impart to Corsica a kind of mysterious charm. We have our beds placed in view of the east windows, that we may awake by times in the morning, and both luxuriously enjoy the magnificent hues of the rising sun reflected on cloud and water, and also scan the horizon for the "fair island." When seen in the day, all communicate to one another the important fact; the more interesting from its portending, according to the weather-wise, a break-up in the weather—rain, or storm—a statement which I doubt.

I may safely assert that nearly the entire English population of Mentone, under the influence of these feelings, is each winter possessed with a strong desire to visit Corsica. Not only was this desire all but irresistible with me, but I had other reasons for wishing to explore its shores and mountain land.

I had become deeply impressed with the unhygienic, unhealthy state of the large towns of the south, misnamed health-towns. I had become convinced that, owing to the absence of hygienic precautions, all the large centres of population in the south of Europe, pernicious to the strong and sound who inhabit them, are totally unfit for the diseased, health-seeking community. As a necessary sequence, the only safe residences for such invalids are small, sparsely-populated places, such as Hyères, Cannes, Mentone, San Remo, or the suburbs of towns such as Pau and Nice, in which extra-urban villas have been built expressly for invalids. These really healthy winter residences, however, are not numerous, and I was anxious to increase their number, and believed that I might find in Corsica good winter stations. I also hoped to discover in its highlands a cool mountain station fit for a summer residence, a want much felt by those who winter in the south, and do not wish to return to England in the summer.

On inquiry as to the means of reaching Corsica, I could gain but little information at Mentone. None of the inhabitants had ever been there, and they seemed to look upon it as a very inaccessible place, in a state bordering on barbarism. I therefore wrote to M. Fabiani, a bookseller at Bastia, the principal town, for a map and a local guide, and to Marseilles and Genoa for information about steamers. In due course I received all I had applied for, and found, as usual, that every difficulty at once vanished. I also met with two very agreeable travelling companions, an English clergyman and his lady, with whom I left Mentone for Genoa April the 15th, 1862, by the beautiful Riviera road. Two English ladies subsequently joined us at Ajaccio.

We entered Genoa on a lovely summer afternoon, and found the entire population out-of-doors in holiday costume. Genoa looked as beautiful and interesting a city as it ever does in fine weather. The night was spent at the Hôtel Royal, which I can recommend, for not only is it comfortable, but it is kept by an Englishwoman, who is very kind and attentive to all travellers, and deserving of support.

The next morning I went to look after the steamer, which starts every Friday afternoon, at six, for Bastia, touching at Leghorn. To my dismay I found that it was my old friend, or enemy, the *Virgilio*. I imagined it had, many years ago, been broken up, either by the winds and waves, or by the hand of man. There was, however, no help for it, no other boat went to Corsica; and to the *Virgilio* we had to entrust ourselves.

The weather was beautiful, the sky clear, the sea calm, the barometer at set fair, and this time the old boat slowly but surely performed her allotted task. We steamed quietly along the coast, sitting on deck, and enjoying the beautiful scenery until dark. Then we went down and

slept until we reached Leghorn early the next morning, but several hours later than we should have done by one of the ordinary Leghorn steamers. After unloading cargo at Leghorn, and taking in passengers and goods, we again started at nine, and arrived safely at Bastia at four in the afternoon, the usual passage by a good steamer from Leghorn being five or six hours.

The engineer was a short, stout, good-humoured countryman of ours, and an interesting specimen of the philosophical roving Englishman. He was born and bred, he told me, at Liverpool, and came to the Mediterranean some twelve years previous. He had served in every part of that sea, and had never once been home. He had married an Italian woman, who lived with his children at Genoa. His pay was good, and, as he was quite comfortable and happy, he had no wish whatever to return to England. The *Virgilio* was a good sea boat, and her engines also were good, but both were very old—he presumed at least thirty years. She was, he said, slow but sure, and safe in a storm, as, indeed, I had found her many years ago.

On a fine warm summer's day, such as we were fortunate enough to enjoy on the 18th of April, with an all but calm sea, the passage from Leghorn to Bastia is very enjoyable. As the vessel recedes from the mainland, the fine marble mountains of Massa Carrara are the prominent feature. Then as they become indistinct, the island of Elba and the mountains of Corsica come into view. Elba, from the sea, appears merely a mass of rocks and mountains, with but little evidence of vegetation. Still it will ever be interesting to the traveller as the first prison home of Napoleon the Great.

How singular his fate. Born and brought up in Corsica, he finally left it at the age of twenty-three. With the exception of a few hours passed at Ajaccio on his return

from the campaign of Egypt (1799), he never saw Corsica again until, hurled from the height of human power, he was chained to this rocky islet, within view of his native land. Between these two epochs of his life, events all but unparalleled in history had taken place. He, the humble Corsican soldier, had been a great emperor, a king-maker and a king-destroyer, and had wielded the lives of men as if they had been mere sand on the sea-shore. Elba is the first land that vividly recalls to mind the great Corsican hero. From that moment his memory was scarcely ever absent from my thoughts. It pervades his entire native country, and is indestructibly mixed up with its past and present history. Indeed, it throws a kind of halo, if I may use the term, over the entire island.

Two other islands are also passed, Capraja and Monte Cristo. They are both mere barren rocks, but healthy, and capable of being rendered very fertile by human labour under the life-giving southern sun. Capraja is celebrated in the past history of Corsica from having been for centuries a field of battle between the Genoese and the Corsicans.

Monte Cristo, which has given its name to Dumas' celebrated novel, is a small, uninhabited islet, that attracted attention some few years ago through the adventures and misfortunes of its owner—one of our countrymen. This gentleman purchased the entire island, and settled upon it, in the regular Robinson Crusoe style, monarch of all he surveyed. He gradually brought a considerable area under cultivation, started a steamer of his own, and succeeded in establishing a flourishing little colony. Misfortune, however, overtook him in the shape of the Italian revolution. Some Garibaldians, on their way to Sicily, landed in the island, and pillaged it. Our countryman's sympathies were with the Duke of Tuscany, those of the six

soldiers and of the sergeant, their commander, who formed the island guard, were with the revolutionary side. They quarrelled, he was insulted, and left the island, and the complete ruin of the colony rapidly followed. Redress was sought in the Italian courts, but without success. The Government refused to recognise the acts of the lawless Garibaldians in this the early stage of their career, and the Elba magistrates, siding with the sergeant and his men, fined our unfortunate countryman for rebellion against the "constituted authorities."

The English Parliament was called upon to take the part of the English proprietor, but, after a long debate, the ministers refused to interfere between the parties. Thus ends, for the present at least, an Englishman's dream of a little monarchy in the Italian seas. We have all of us, in our youthful days, longed for the possession of just such an island as Monte Cristo, and cannot but feel deep commiseration for the misfortunes of one who had thus bravely realized the boy's paradise. But is not the downfall of the little empire explained by the evident want of sympathy of the king of Monte Cristo for the popular Italian cause? If so, he has fallen with the political party he espoused, with his friend the Duke of Tuscany. It is a political, an historical fall, and not a social one.

As Corsica is approached its alpine character becomes evident. It rises from the sea as a chain of mountains extending from north to south. At the basement little hamlets are seen, five hundred or a thousand feet above the sea-level, clinging to the wood-clothed mountain sides. The town of Bastia is not discovered until we are but a few miles from the coast. It then appears as a cluster of white houses rising gently above the shore.

We landed in a small and secure harbour, but so narrowed by the jetty that in bad weather the entrance is

very difficult. Some years ago the mail steamer was lost through striking against this jetty in a stormy night, and forty souls perished, although within a few feet of the shore. As we rowed quietly in, for our steamer was going on to Porto Vecchio and Sardinia, and had stopped outside, the precise spot where the vessel had struck was pointed out to us. It was all but within the little harbour, so near land that it was difficult to understand the catastrophe. With the calm, smooth sea we then had, the entire crew might have jumped ashore.

Another and larger port is now being constructed, to the north-east, by means of large blocks of artificial stone. These blocks are made on the spot, of immense size, and of any required form, and much facilitate the construction of piers and sea-walls. The new port of La Joliette, at Marseilles, has been made in this way. The construction of this harbour will be a great advantage to Bastia, the small port of which is now inconveniently crowded with shipping.

The channel between Italy and Corsica is considered a smooth sea, for Corsica acts as a breakwater to the south-west and north-west; but still at times there is a very heavy swell in it, as I had experienced to my sorrow. This is more especially the case when the south-east or sirocco wind reigns.

Many years ago, in 1839, when resident medical officer in the Paris hospitals, I had a friend, a young Corsican physician, M. Piccioni, a clever, energetic man, whose professional prospects were even then considered very good. Our friendship shared the fate of many such youthful ties. We parted, he for his native country, I for mine, and never heard of each other again. As soon as we were comfortably settled in the Hôtel de l'Europe, an inn very similar to what we should find in a small French continental town

out of the track of tourists, I inquired for the friend of former days. To my delight and surprise I found that he was alive, a flourishing, universally esteemed man, and actually living at Bastia. I had also a letter of introduction to Dr. Manfredi, head surgeon to the Bastia hospital, and the leading operating surgeon of the island. We were most cordially welcomed, I and my companions, both by the old and new friend, and, thanks to them, ever after felt quite at home in the island. They transferred us to other friends and relatives at each successive stage of our progress, and as we were everywhere received with great cordiality, we felt quite at home wherever our steps were directed.

We remained some days at Bastia, exploring the town and its neighbourhood, and then went to San Fiorenzo. From thence we pursued our journey to Calvi, to Corte, and finally to Ajaccio, whence we embarked for Marseilles, having passed three weeks very enjoyably in the island. The weather was splendid from first to last, the mountains were ever pure in outline and free from clouds, the sky was blue, the sun shone brightly, no rain fell, the country was in the glory of early summer, or of poetical spring.

I shall now endeavour to convey to my readers, as briefly as possible, the results of the experience gained during this tour, as also during two subsequent tours made in the island in the spring of 1865, and in that of 1868.

Corsica is the third largest island in the Mediterranean, Sicily and Sardinia being both of greater size. It is situated between the 41° and 43° of north latitude, and between the 6° and 7° of east longitude. The distance from the coast of Italy is 54 miles, from that of France 90; its length is 115 miles, its greatest breadth about 54 miles. Corsica is a mere mass of alpine ridges rising out of the

sea like a vessel or the roof of a house. The mountains attain the highest elevation in the centre.

There are two mountain ranges which form the island, running longitudinally through it from north to south. The eastern range commences at Cape Corso, a narrow longitudinal mountain, some 3000 feet high, and more than 20 miles long, the base of which is bathed by the sea both east and west. This range is secondary, calcareous, and descends to the south at a moderate elevation. The second range is primitive, granitic; it commences near the west coast at Isola Rossa, rises rapidly to a height of 8000 and 9000 feet, and runs through the island down to its southern extremity.

The different geological nature of these two mountain ranges has, in the course of countless ages, modified the character of the eastern and western shores.

The eastern range, composed, as stated, of secondary calcareous rocks, is more easily disintegrated and washed away by the action of the elements. Owing to this cause the rivers which descend from its sides, and from the central regions of the island, through clefts which these calcareous mountains present, have deposited at their base alluvial plains of considerable extent. Through these rich alluvial plains several large streams meander to reach the sea. This they accomplish with difficulty owing to the lowness of the shore, and to the prevalence of the sirocco or south-east wind, which constantly throws up large masses of sand at their mouths. Hence the formation, along the eastern shore, of large salt-water ponds, into which some of the rivers empty themselves.

Under the burning glare of a Mediterranean sun, these terrestrial conditions—large ponds of brackish water, marshes, and rich alluvial plains, liable to periodical overflow—embody all the elements calculated to produce

fevers of the most deadly character. By such fevers is this region rendered all but uninhabitable for half the year.

The western, primary, granitic range of mountains, is the real backbone of the island. It must have been thrown up long before the secondary eastern range, is very much higher, and is covered in some regions with eternal snow. This range is jagged and irregular in its outline. It throws out high granitic spurs towards the western sea, which jut into deep water, and form deep bays or gulfs, as is usual with primary rocks.

These spurs divide the western side of the island into deep, wide, picturesque valleys. At the bottom of each valley runs a brawling stream, which carries to the sea the watershed of the high snow-clad mountains, and forms an alluvial plain, of greater or less extent, as it nears the coast.

Disintegration, however, during the geological period has been slow, owing to the granitic character of the mountains, and the rivers have carried less soil to the sea than those of the eastern or calcareous side of the island. The alluvial plains are, consequently, all but confined to the mountain valleys, and the sea is very deep near the shore. On this side of the island are all the natural ports, with the exception of that of Porto Vecchio on the south-east coast. Thus there are no ponds, the marshes are small in extent, limited to the immediate vicinity of the outlet of the rivers, and intermittent and remittent fevers in comparison are by no means so common.

The spurs which limit the western valleys being very rugged and of great height, the peasants who inhabited them were all but cut off, in former days, from communication with mankind, on every side but that of the sea. A coast road which ascends and descends the granitic spurs,

has been long in construction, and is now completed from Bonifacio to Ajaccio, and to Porto. Between the latter place and Calvi, about fifty miles, it is still under construction. This last section will be finished, it is said, in 1870, and then Corsica will be completely encircled by a good carriage road uniting every region.

Between the eastern and the western ranges of mountains there is a highland country, an elevated mediterranean area of mountains and valleys, which forms about one-fifth of the entire superficies of the island.

The botanical productions of Corsica assimilate, as might be presumed, to those of the countries that surround it. The north, by its vegetation, approximates to the Riviera, the east to the Italian coast, the west to Provence and Spain, whilst the south, and I may say the entire island, shows decided African affinities. Indeed, in a subsequent survey of Algeria and Mount Atlas, I was much surprised to find the vegetation of the granitic and schistic regions of the Atlas mountains all but identical with the vegetation of these same formations in Corsica.

In the plains on the coast, cereals and Indian corn are grown in considerable abundance, and succeed admirably. The Mulberry tree, also, is cultivated in great perfection, and as the climate is suited both to its growth and to the rearing of the silkworm, there is a great opening in this direction for the Corsicans. On the lower hills and mountain valleys the Olive tree abounds and flourishes. The Vine is also cultivated with great success, and admirable wine is made, of rather a full-bodied character, especially on Cape Corso and about Sartene. Higher up, the Chestnut tree grows to a magnificent size, and produces fruit of the very best quality. Entire districts, especially on the eastern side of the island, are covered with splendid Chestnut forests. One of the eastern districts, indeed,

having the little town of Piedicroce for its centre, is called the Castagniccia, or Chestnut country. It has ever been famous in history for the unconquerable intrepidity and love of freedom of its inhabitants. Throughout centuries of tyranny and oppression in Corsica they have never been entirely subdued, and that principally owing to their Chestnut trees. Formerly, and even now, their main food is the Chestnut, with scant assistance from the oil of the Olive trees, the wine of the Vines, and the flesh and milk of their sheep.

The Chestnut tree wants no cultivation whatever, no watching. Like the Bread-fruit tree of the tropics, it produces fruit that only requires gathering when ripe, and in this climate it never fails to produce a crop. Thus the inhabitants of the Castagniccia could fight all the year round and yet live. They might be hemmed in on all sides in their mountain fastnesses, all ingress might be stopped for years, and yet they flourished. These times have passed away; for more than half a century there has been peace in Corsica, but still the inhabitants of the Castagniccia retain their desultory habits. They live, I am told, in sober idleness, play at cards, and talk politics all day, and work as little as they can possibly help. Their artificial modern wants, even, are easily supplied by the sale of the surplus chestnut crop, now rendered easy by the increased facility of communication with the Continent.

The cultivation of the Olive tree on a large scale would appear to engender the same apathy and disinclination to work on the part of the peasantry. There is one region called the Balagna, extending from San Fiorenzo to Calvi, comprising a series of smiling hills and of lovely fertile valleys, which is a very garden of Olive trees. It is renowned throughout the island for its richness and for

its luxuriant fertility. A leading proprietor informed me that the peasantry, all proprietors, led the same "*far niente*" life of easy enjoyment as their countrymen in the Chestnut districts. The Olive tree requires a little more trouble, it is true, than the Chestnut; it has to be pruned and manured every year or two, the fruit has to be crushed and the oil sold. Still all this, like the labour of the Irish cottier on his potato-ground, takes but little time. Every year or two an abundant, easily-earned harvest of oil pays off debts and leaves a surplus to live on until the next be ready. Why should he work, says the peasant, when his future is thus secure? People cannot live, however, upon oil alone. It must be sold to maintain the grower, and owing to this reason, no doubt, the Balagna has from time immemorial been conquered and held by those who held the adjacent coast.

Above the range of the Chestnut tree we meet with the Pinus Maritima, and above that, along with it in some regions, the Pinus Larix or Larch. This tree is a native of Corsica, and in no part of Europe does it grow to greater luxuriance and perfection. In some of the primitive forests, noble trees, more than one hundred and twenty feet in height, are found. Above the Pines comes the Beech, then the Birch, and then the eternal snows.

These details of physical structure explain the history of Corsica. As in most mountain regions of a similar nature, for numberless centuries, from days anterior to those of the Romans, its inhabitants were at war with their neighbours, all of whom in succession tried to conquer them. The shores and shore-towns were successively in the possession of the Greeks, the Romans, the Saracens, the Spaniards, the Tuscans, the Genoese, and finally, of the French. But the mountaineers were

never conquered. Alternately defeated or victorious, they ever maintained their independence. Conquerors, they drove the invaders from their native soil. Conquered, they retreated to their mountain fastnesses, to the primitive forests which still cover a considerable portion of the island, to the neighbourhood of the eternal snow. There, who durst follow them? The attempt only brought destruction upon their pursuers. Such was ever the history of this small community, then not numbering much above a hundred thousand souls; as noble a race of free men as ever trod the earth.

The history of Corsica is full of heroes, of heroic deeds, of romantic achievements. Each successive century bore patriots ever ready to sacrifice their fortunes and their lives for their country, as in the heroic days of early Rome. Nor were the opportunities for so doing wanting. No sooner was one enemy disposed of than another appeared. Peace never lasted more than a few years, seldom as long; and each successive generation had thus to renew the struggles which had tested the courage, the patriotism, and the endurance of its precursor.

Is it surprising that the names of these Corsican heroes should be household words? that Giudice della Rocca, Giampolo, Sampiero, Paoli, and many others, should live in the affections of the Corsicans even unto the present day? Is it surprising that the Corsican women should have imbibed and shown, in times now gone by, the stern patriotism of the women of Sparta? or that their "voceros," or chants and national songs, should, up to this day, breathe a spirit of defiance and a love of vengeance unknown to the inhabitants of more peaceful regions?

A population which has for so many centuries—indeed until quite recently—lived in a state of constant warfare against foreign tyranny and oppression cannot all at once

calm down to the social condition of countries that have for centuries ceased to fight for their existence. Thus is explained the exceptional social condition that until very recently reigned in Corsica.

The Genoese were, during the Middle Ages and until the latter part of the last century, the most persistent and cruel persecutors of Corsica. They established themselves in Corsica towards the end of the thirteenth century, and gradually gained possession of the coast towns and of a considerable portion of the island. War may be said never to have ceased from that time until the Corsicans surrendered themselves to France, in June, 1769, two months only before the birth of Napoleon Bonaparte.

In 1737 the Genoese, finding themselves hard pressed, applied to France for assistance. Cardinal Fleury gladly availed himself of the pretext to establish a footing in Corsica, and sent five regiments to their assistance. From that time the Corsicans had also to fight against France. They defended themselves desperately for thirty years, but at last their great general, Paoli, was defeated, and they had to succumb.

The father of Napoleon I. was a prominent member of the patriotic or anti-French party. He was private secretary to the celebrated chief Paoli at the time the capitulation was signed, and Corsica annexed to France. A few months later his wife gave birth to the great warrior and statesman who was to wield with such terrific energy the destinies of the French, whom his countrymen then looked upon as foreigners and conquerors.

The great and patriotic Paoli, who for a quarter of a century had governed the Corsicans with the wisdom of a Solon and the courage of an Epaminondas, abandoned his native country when it became a mere province of France,

and took refuge in London. There he lived for thirty years, in Holborn, a glorious exile from his sea-girt island home. When I gazed on the magnificent mountains, the beautiful clear sky of Corsica, and the glorious azure sea that surrounds it, I often thought of the sad exile of former days. How his heart must have yearned for his own native land in the fog and gloom of a London winter. He could have returned had he submitted to the rule of France; but this his patriotic soul would not stoop to. He preferred to live length of years in exile in a northern land, and there to die, away from the home of his fathers.

He once returned, but only for a few years. When the French became republicans they were ashamed at having extinguished Corsican freedom, publicly apologized, recalled Paoli in 1790, and placed him at the head of his countrymen. The latter soon tired, however, of republican tyranny, appealed to England, expelled the French, and positively annexed Corsica to England (1794). Paoli and his English friends soon became obnoxious in their turn. The Corsicans rose against them, returning to French allegiance, and the French dominion was again definitively established throughout Corsica in 1796.

The generation of Paoli has long passed away. Mighty events — events that have shaken Europe to its very foundations, and totally changed the fortunes and future destiny of the nation that annexed his native country — have taken place. These changes may be traced in a great measure to the genius and to the Corsican tenacity of purpose of the son of one of Paoli's companions and friends. The Corsican character, however, remains the same. The love of freedom, the firm resolve not to yield to authority against the dictates of conscience, still characterize the sons of Corsica. There are still Corsican exiles who reproduce the patriotic self-denial of Paoli.

It is a question whether the Corsicans, with their indomitable pride and individuality, would have submitted so completely to France, had it not been for the marvellous rise of Napoleon Bonaparte, their countryman. As I have stated, Napoleon was born a few months only after the annexation, and by the age of twenty-nine he was general of the army of Italy, at that of thirty he was first consul, and at thirty-four emperor. The national feeling is still very strong with the Corsicans, and I have often heard it said, half seriously, "It is Corsica in reality that has annexed France, not France Corsica." Every man, woman, and child in the island is proud of the first emperor, and acquainted with every detail of his life. The advent of the present emperor to the throne of France was hailed with a shout of delight and patriotic love from one end of Corsica to the other, and nowhere has he more devoted adherents. Yet, to the stranger, the country is more Italian than French. Except in the large towns, Italian, or an Italian dialect, is the principal language, and the features and manners of the inhabitants, like the vegetation, are also decidedly Italian.

They complain rather bitterly that they are neglected by France, and that the very great natural resources of the island are not developed as they might be. This reproach to me appears scarcely just. The first Napoleon it is true, did but little for his native country, a very singular fact. As we have seen, although born and brought up in the island, which he constantly revisited during the first years of his military career, he never came to it again after his return from Egypt. Perhaps he was so totally absorbed by the Herculean duties that filled his career, as to have but little leisure to think of the material welfare of his native country. Perhaps he was disinclined to draw, in too marked a manner, the attention of France

he governed to his Corsican origin. On one occasion a decree was signed for some important public works at Ajaccio, but they were not carried out. This he only learnt years afterwards. When at St. Helena, his thoughts, however, reverted constantly to the mountain island that gave him birth. He often spoke of it, and of what he intended to have accomplished for its welfare and prosperity had he remained in power.

Subsequent governments appear to have done for Corsica what they have done for other departments of France, perhaps even more. The French centralized system of law, education, and road-making, has been generally introduced, and every facility given to the inhabitants to mentally improve themselves, and thereby to lay down the foundation of public prosperity. The roads that now connect the principal coast towns, and all but encircle the island, are excellent, as good as our high roads in England, even in the most wild and uninhabited regions. There is a very good road intersecting the island from Bastia to Ajaccio. It passes over the two mountain chains, and through Corte, the ancient patriotic capital of Corsica. Various forest roads have also been lately made, leading into the heart of the country, into the primeval forests, which occupy the high central regions.

The great impediment to the material progress of Corsica up to a very recent period, has no doubt been the very abnormal social condition of the island. So peculiar and strange was this condition, so foreign to all modern notions, that it may be questioned whether the whole world could afford a parallel. The *vendetta* which characterizes it must sap at the root all public enterprise and prosperity.

The vendetta is a system of vengeance to the death which has existed for hundreds of years in Corsica, and which was, until recently, recognised and approved by

nearly the entire community, including even the less enlightened ministers of religion. Its origin is obscure, but may probably be traced to the constant feuds and warfare that have existed in the island, dividing the members of families and communities, ever arming one against the other, and to the weakness of authority.

All Corsicans carried firearms. If one man considered himself insulted by another in any way, however trivial the grounds, he shot him. From that moment the family of the man killed was bound in honour to pursue the murderer, or in his default, some member of his family, and to retaliate blood for blood. This obligation descended from one member of the family to another, until it often ended in the all but entire destruction of both families. Villages, entire communities, would take up the quarrel of their members against other villages, other communities, and thus, in the absence of a public foe, they massacred each other.

I was told by a very intelligent Roman Catholic priest, curé of a remote country village, that the greater part of these feuds were the result of jealousy. The general feeling was that any insult offered to a woman ought to be washed in the blood of the offender, by her male relatives, husband, father, brother. This sentiment, he said, was so strong and general, that were the recent laws relaxed, there would be just as many assassinations as in former times, and, consequently, as many outlaws in the mountains. Indeed, if there was no male relative to avenge them, the Corsican women often revenged themselves.

This latter statement was fully borne out by what I heard at Corte during one of my visits to Corsica. In April, 1865, there were three women in prison for killing their lovers. One, a fine young woman of twenty, of a good peasant family, shot her lover dead in the market-place of Corte, ten days before I arrived. He had de-

serted her after promising to marry her, positively refusing to ratify his promise. She was in prison, but my informant, one of the leading inhabitants of Corte, stated that her imprisonment was a mere form, and that she would be either acquitted or condemned to prison for a few weeks only. The entire community, himself included, thought her a very noble girl, who had served her base lover quite right. I subsequently heard that, as anticipated, she had only been condemned to three months' confinement, as guilty of what we should call "justifiable homicide."

This girl, in vindicating her honour, only followed the traditions of her country. Some years ago a young girl of Ota, whose rather poetical name was Fior di Spina, or Hawthorn-flower, killed her lover for the same cause—his refusal to marry her. One of her compagnons improvised a "vocero" or ballad, which I give below, both as illustrating the feelings of the Corsican women on such occasions, and as a good specimen of the language spoken to this day. It will be perceived that it is thoroughly Italian. This vocero is published by M. Jean de la Rocca, in an interesting work entitled "La Corse et son Avenir." 1857.

VOCERO.

"Stamane, in piazza d'Ota,
T'hannu messu la courona
Tissuta in oro ed in argento,
Secondu la to personna,
Dapu stu colpu di pistola
Che in Corsica risona.

"Arrivata da u su babu,
Si vesti da grand' guerriera,
Carca di ferru et di piombu,
Colla carchera e la tarsetta,
Lu stilettu e la pistola,
Dicendo: Oggi e u me sicretu.

" Quest' avia un cuore d'un lione,
D'una tigra allatata.
Ha stesu lu bracciu colla pistola,
Ed in capu la sbarata,
Dicendo : Anima infidele,
La tu morte è preparata.

" Deh ! portatemi a Tallavo,
Dove so i banditi più fieri,
Giacomo e Santa Lucia,
Questi cuori bravi e guerrieri,
E con elli in compagnia,
Girero boschi e sentieri."

LITERAL TRANSLATION.

" This morning, in the place of Ota,
they placed on you the crown,
woven in gold and in silver,
according to (worthy of) your person,
after this pistol-shot
which in Corsica resounds.

" Arrived at her Father's
she dressed herself as a great warrior,
loaded with iron and lead,
with the cartouche-box and the tarsette,
the stylet and the pistol,
saying : To-day it is my secret.

" She had the heart of a lion,
of a tigress suckling.
She extended the arm with the pistol,
and on his head discharged it,
saying : Soul unfaithful,
your death is prepared.

" Now ! take me to Tallavo,
where are the banditti the proudest,
Giacomo and Santa Lucia,
those hearts brave and warlike,
and with them in companionship,
I will rove in the woods and paths."

According to a French prefect quoted by Gregorovius, whose Travels in Corsica I can recommend as a most fascinating book, 4300 assassinations occurred in Corsica between the years 1821 and 1852, in a population of two hundred and fifty thousand. In the last two years of this period the number was three hundred and nineteen. The peasant scarcely cultivated his field, for fear of being shot whilst at the plough, and his life was often passed in tracking or avoiding a foe. The women, bred up in a savage sense of honour, urged their husbands and sons to these deeds of bloodthirsty revenge, sang wild songs of triumph (*voceros*) over them if victorious, and equally wild songs of lamentation if they were killed.

Many Corsicans in those days spent years of their life barricaded in their houses, which they durst not leave for fear of their pursuers. The story is told of one man who remained fifteen years thus barricaded in his dwelling without leaving it. One day he heard that his antagonist was away, and ventured to go out and cross the road, only to fall dead on the other side, shot through the body by an enemy who had waited fifteen years for him. I myself made the acquaintance at Isola Rossa of a gentleman, one of the leading proprietors of the island, who, a long while ago, actually lived for two years barricaded in the upper flat of a house in that town to avoid the "vendetta." An iron door on the staircase, through which he could shoot any one approaching, protected and separated him from his relentless foes.

How could a country prosper under such circumstances? The French Government never would take the chivalrous view of the Corsican vendetta, but declared from the first that a man shot under these circumstances was simply assassinated. If caught, he was tried, and either executed or sent to the galleys for life. This unpleasant mode of

viewing the national point of honour in no way restrained the Corsican mind. They shot their enemies as before, and then retired to the mountains, where they could set the law at defiance, becoming banditti. At the commencement of the present century there were 1000 men in the mountains (*à la montagne*). The commandant of the gendarmerie at Ajaccio told me that in 1855 there were still three hundred.

These men were not brigands, such as we used to meet, and still meet, in Italy, in Calabria, and elsewhere. They were "honourable men," who had vindicated their sense of honour, in accordance with the immemorial custom of their race, and with the approbation of the large majority of their countrymen. Once in the mountains, out of reach of the authorities, in the primitive forests of the Monte d'Oro, the Monte Rotondo, the Monte Renoso, or the Monte Inchudine, they merely wished to live. They killed game, their friends and relations sent them supplies, the peasants and shepherds gave them food, and helped them to avoid their enemies, the soldiers and the gendarmes. Thus they led a kind of wild, Robin Hood life; seldom, if ever, attacking travellers, or doing harm to those who left them alone. I have been told that a traveller, not an enemy, might have gone among most of them with his pockets full of gold without fear. They would only have politely asked him for a small pecuniary contribution, if they wanted it. Some few, however, were less honourable, less easily satisfied, even in those days, and could not have been thus trusted.

It was in vain that the French Government kept a regiment or two of soldiers in the island, and a large body of "moveable gendarmerie," accustomed to the mountains, and to mountain warfare. The vendetta was too deeply rooted in the minds of the Corsicans. The mountains

were too inaccessible, and the population too favourable to these "honourable bandits," for them to be exterminated from the land. A few years ago (1854), therefore, very extreme measures were adopted; measures which seem very strange in our times as applied to a department of France, to the birthplace of the present imperial family.

Two laws were passed by the French Chambers. By the one, the entire population was disarmed; it was made penal to carry firearms, or arms of any description, for any reason whatever, even including the pursuit of game. For many years there was no regular sporting in Corsica. A landed proprietor could not take out a gun and shoot a bird or a hare on his own property, without the permission of the prefect. When this permission was asked, and granted, it was given for one, two, or more days, for a special district, under the name of a *battue*, and police-agents or gendarmes were required to be present. All the higher and well-informed members of the community cheerfully acquiesced in the law, and surrendered their pleasure for the good of the community. This law has only been partially repealed this year, 1869.

By the other law, the *loi du recel*, or law of concealment, all persons harbouring or assisting outlaws are liable to imprisonment. This law has been stretched in practice in a very singular and Draconian but very effectual way. If a man kills an enemy, and goes to the mountain, the authorities instantly seize and imprison his relatives, and keep them in prison until he be caught or have surrendered. A very remarkable application of the law occurred during my first visit at Ajaccio. A bandit who had killed twenty-seven people in his life, principally gendarmes, and had been out in the mountains above thirty years, had for some time disappeared, and was supposed

to have gone over to Sardinia. He had recently reappeared, and had been seen in the vicinity of Sartene, in the southern part of the island. As many as sixty of his relations and descendants were immediately seized and imprisoned, and were only released when it became quite evident that the old offender had again withdrawn from the island.

Inhuman as this step may seem, it has been attended with the most beneficial results. These men of bronze, who killed an enemy as they would a noxious insect, whom no human or divine feeling could restrain from shedding blood, are fond fathers, sons, and brothers. They cannot bear to see their children, their fathers and mothers, brothers and sisters, permanently in prison, on their account. They either do not assassinate any longer, or they give themselves up to the authorities, and meet their punishment. There are now not more than two or three outlaws "*à la montagne.*" Were such a law passed and rigidly carried out in Italy, the country would soon be cleared of the banditti that infest it.

The rigid application of the *loi du recel* cuts at the root of one of the chief causes that tended to keep up banditism. So far from a peasant family being disgraced by one of their members being "out in the mountain," it was, in some sense, an advantage to them. From that moment the family had allies who protected and assisted them in their feuds and quarrels. They furnished provisions, powder, information, and, on the other hand, they received assistance and protection from their bandit relative and his companions. The imprisonment of his relations deprived the bandit of the all but indispensable assistance he was receiving, and transformed the members of his own family into very lukewarm sympathizers, if not absolute antagonists.

A singular feature in the history of these outlaws is their

attachment to their native land. They could easily get to Sardinia, which is only separated by a strait a few miles across, or they could take refuge in Italy. But the love of their native country is too strong. They prefer to lie out for years in the forests and mountains, to be tracked daily like wild beasts, without hope of pardon or eventual escape, to taking refuge in another land.

The commandant of the "gendarmerie," whose acquaintance I made at Ajaccio in 1862—a brave, open-hearted military man—had been ten years in the island, and they had been years of incessant warfare against the banditti. I heard many interesting details from him of the mountain warfare he had unceasingly waged—for such it is. He had several hundred men under him—all young, of great physical powers, and inured to hardships of every description. His attacks were principally made by night marches of twenty, thirty, or even forty miles, which enabled him to surprise his wary enemy.

I expressed my astonishment that he was still alive, that he had not been assassinated, Corsican fashion, after so often leading his men in such desperate work—for he said he had sent scores to the galleys and the guillotine. He replied that the explanation was in the fact that he had always treated the banditti as fair antagonists. He had waged honourable war against them, and fought them openly, as he would have done a military enemy. He had surprised them, and exterminated them when he could, but never with the assistance of treachery, which he despised and repudiated. So thoroughly convinced, he added, were the bandits of his honour, that were he that evening to write and make an appointment in Ajaccio with the most notorious of the few remaining, they would not for one moment hesitate to leave their retreat, and come to meet him in Ajaccio itself.

One incident of the adventurous life of the worthy commandant deserves narration. He had been long pursuing a very desperate bandit, who had killed several persons, and had been in the mountain for many years, eluding all research. At last he heard that he was sleeping every night in a cavern, situated in a very wild and secluded district, high up in the mountains. By a night march he surrounded the cavern with a hundred and fifty men, and, certain of the outlaw's presence, summoned him to surrender. The only reply was a couple of shots, which killed one of his men. He then determined to smoke him out, and commenced piling a heap of brushwood before the cavern; but before this could be half accomplished, two more of his men lay dead on the ground, shot through the body by his antagonist. Anxious not to sacrifice any more lives, the commandant determined to starve out the bandit, being aware that his stock of provisions and of water was limited. He therefore drew round the cavern, which had only one issue, a double cordon of men in the brushwood, and waited.

For two days and two nights was this tiger-watch continued. On the third night, towards morning, hunger and desperation prevailed, and the bandit made a sudden rush out of the cavern. Twenty guns were instantly levelled at him and fired, and he fell dead; but not before he had had time to single out and deal a death-shot to one more of his enemies. Thus the destruction of this man cost four valuable lives. This dramatic incident occurred only a few years ago.

It was easy to see that the worthy commandant entered thoroughly into the spirit of his arduous career; indeed that he enjoyed it. His eyes sparkled whilst he told me of the long night marches, of the ambuscades, of the surprises, and of the manœuvring, which form the

main features of this mountain warfare. No doubt the excitement and uncertainty of this kind of campaigning has great charms for men fond of adventure.

The difficulty of seizing an outlaw who is supported by the warm sympathy of the entire population, and is assisted by them in every way, has been well illustrated recently in Ireland. In a quiet, civilized country, where there are no primeval forests, no mountains covered with eternal snow, an elderly assassin eluded the pursuit of the entire police force for two years, and at last died of disease. His whereabouts was constantly discovered, but owing to the connivance and assistance of the peasantry he as constantly eluded his pursuers.

The above facts appear to me sufficiently to account for the backward state of Corsica as regards its material development. It is the history of the Highlands of Scotland two hundred years ago—a people constantly fighting either against strangers or amongst themselves, and learning to look upon actual labour as derogatory. Such a social state is all the more easily accounted for when the material wants of life are few, the population sparse, the climate mild, and the soil so naturally fertile as to produce, all but without trouble, the actual necessaries of life.

At last, however, the very vigorous measures adopted by Government are beginning to tell thoroughly on the social condition of the entire community, and security reigns where diffidence and alarm formerly existed. There can be no doubt, therefore, that the natural resources of Corsica will speedily be developed. The forests of Corsica contain timber as valuable as that which is imported into Europe from countries thousands of miles away; its wines are good, abundant, and cheap; its mineral wealth is said to be great—lead, copper, and iron being found, I was told, in abundance, and with little labour. The island is

all but encircled and penetrated by good carriage roads, and regular and frequent steam communication exists between its principal ports—Bastia, Calvi, Ajaccio, and the French and Italian mainland. Capital and enterprise are alone wanted, and they are sure to make their appearance.

Were Corsica an English possession, a dozen companies would be at work in a few months; but commercial enterprise is slower in France. The French still look upon Corsica as a semi-barbarous country. The officials who hold appointments there consider themselves banished, and ever aspire after the time when they can return to France, to Paris. Scarcely any travellers, either French or others, ever visited the island, except on business, until my notice of it in the second edition of this work, in 1862, drew attention to its great natural beauties. So much was this the case, that the advent of myself and companions was a matter of surprise and curiosity. What could possibly have led us there, was the question. Indeed, to explain my presence, I was invested by the public with "a mission to examine the climate and productions of Corsica."

This isolation is, however, ceasing, and I am greatly gratified to think that I have been the means of sending hundreds of my countrymen to this very beautiful island. In fact, in no part of Europe can a few weeks be spent more pleasantly in spring or autumn by the healthy tourist than in Corsica. In early autumn malaria is still too prevalent for pleasant and safe travelling; but by the end of October it becomes quite safe. It may, with the greatest ease, be visited on the way to Italy, or on the return from the north of Italy. There is a steamer every week between Nice and Ajaccio, or Bastia, crossing in twelve hours. Two or three steamers run weekly between Bastia and Leghorn, in five or six hours, a short and generally a calm

passage. A steamer runs weekly from Marseilles, to each of the larger ports—Bastia, Calvi, and Ajaccio, returning forty-eight hours after arrival.

The steamer, which leaves Nice every Wednesday evening at seven, and returns from Ajaccio or Bastia on the Saturday evening following, renders the journey to Corsica a very easy one to all who winter on the Riviera.

To the Italian tourist who wishes to deviate from the beaten route, it offers an opportunity of seeing the glorious scenery of Corsica without loss of time. In one night he is at Ajaccio. From Ajaccio to Bastia there is a diligence daily, and a very good road, which passes over the mountain chains, and through most beautiful Alpine and forest scenery. At Bastia the steamer for Leghorn takes the traveller on to Genoa. Another diligence also leaves Ajaccio daily for Bonifacio; and when the Sardinian railroad, now under construction, is completed, and there is regular sea communication between Bonifacio and the Sardinian coast, the traveller for Rome and Naples may diminish the sea journey by more than half, besides seeing some of the most beautiful scenery in Europe. Cagliari, in the south of Sardinia, where the railroad terminates, is only a few hours by sea from Civita Vecchia, or Naples, and from Palermo, in Sicily.

To some classes of invalids, also, Corsica offers winter resources unknown before the publication of my Corsican researches. I was the first to point out, in 1862, that the exceptionally sheltered situation of Ajaccio, on the western coast, rendered it a suitable residence for invalids requiring a moister climate than that of the Genoese Riviera.

Ajaccio (population 14,000) is unquestionably one of the most lovely spots in Europe. It is one of the most smiling little French towns I have seen anywhere. Not being

cramped in by walls, it has spread itself out on the north-west side of a noble and picturesque bay, directed due south. At a distance of some twenty miles from the shores of this bay is seen a hemicircle of the majestic granite mountains, from six to nine thousand feet high; some of which, as we have seen, are capped with snow even in summer. The bay itself is as blue and as beautiful as that of Naples, although on a smaller scale. The town is well protected from the north-west by a spur descending to the sea from the principal range.

The vegetation of Ajaccio and the neighbourhood indicates a climate at least as warm as that of Cannes and Nice, perhaps even a shade warmer. The Olive, the Orange, the prickly Pear, thrive with great luxuriance. In the principal street there is a double row of good-sized Orange-trees planted out in the soil, the effect of which is charming. They were healthy and full of flower on my first visit at the latter end of April, and embalmed the air. I fear, however, that they are in a fair way to be destroyed by an asphalt pavement, which has been foolishly placed over their roots, for they were not flourishing when I last saw them. The Lemon tree grows also, and bears fruit out of doors, but only, as at Nice, in very sheltered and very protected spots. It is evident that there are no prevailing winds, such as are felt on other parts of the coast, for the trees on the shores of the bay, east, west, and north, and in the neighbourhood of the town, grow perfectly straight. In other coast regions, at Isola Rossa for instance, the trees near the shore are turned north-east, indicating the prevalence of south-westerly winds. I have been told by nautical men, that one of the features of the bay of Ajaccio is the absence of the strong winds that reign in the Mediterranean during the winter, but the testimony of those who have spent the winter there proves

that violent and long continued winds often blow from the south-west, especially in March.

There is at Ajaccio a daily land and sea-breeze, which appears with the regularity of the tides in the Atlantic, and much facilitates the navigation of the bay. All the country boats, feluccas, and gondolas from the neighbouring districts go out to sea at night with the night breeze which descends from the mountains, and come in in the morning with the sea-breeze.

The principal medical practitioner of Ajaccio, Dr. Versini —a well-informed old gentleman of seventy-five, now dead—and his son, who has succeeded to his practice, assured me that the climate was a healthy one. The only epidemic disease they suffered from was intermittent fever in the latter part of the summer and early autumn, and that not in a severe form. Its attacks occurred principally when the wind blew from the mouth of two rivers that empty themselves into the bay on its eastern shore. They told me that severe cold was unknown in the winter, and that the weather was generally fine and sunshiny. Their statement was confirmed by General Sebastiani, brother of the late marshal, one of the few surviving companions of Napoleon, a Corsican like him. The general has a residence at Ajaccio, and has spent the winter there for many years. He stated that he had tried nearly every famed winter climate in Europe, but had found none superior to that of Ajaccio, and had consequently adopted it as a winter residence. I found him full of life and vigour, notwithstanding his advanced age, and a very agreeable companion. He showed me over a large well laid-out garden, which climbs the hillside behind his residence, in the middle of the principal street. The general has had the good sense to plant it principally with the shrubs and plants of the country, which makes it exceedingly interesting.

With the care given to them they are all thriving luxuriantly, and a stranger is thereby enabled to compare cultivated with wild nature.

Through the kindness of my friend Dr. Piccioni I was introduced to several families at Ajaccio, and their warm and cordial reception of me and of my companions, rendered our stay there additionally agreeable. I found every one aware of the mild character of the winter climate of Corsica, and anxious that it should become known to strangers.

There is a beautiful drive on each side of the bay, extending for some miles, which is being improved and extended. Several separate villas have been built and furnished above the commencement of this road for the accommodation of strangers. These villas, four in number, are large, well distributed, and comfortable. They are furnished as well as they would be in Paris or in Nice, and are quite adapted to the requirements of a good-sized family. The rents are 4000 or 5000 francs, 160*l.* or 200*l.* for the winter season, according to the size. There is one, a perfect little palace, built by a late "receiver-general" for his own use, which was to let when I was there.

With the exception of these recently built villas strangers will find as yet but little accommodation in the town. There are several hotels, neither very clean nor very good, but where travellers may manage to get on for a short time. Better hotels, however, are promised. The Hôtel de France is the pleasantest, from its looking out on a fine square, or place, near the sea.

Between my first and last visits to Ajaccio, a period of six years, I found that evident improvement had taken place in many respects, and I do not question but that eventually the wants and requirements of northern in-

valids will be so provided for as to render Ajaccio a safe and pleasant winter residence for those who require a moister atmosphere than that of the north shore of the Mediterranean. All islands must be, and are, moister than the mainland, and Corsica is no exception to the rule, for every wind that blows comes over the sea. It is this feature, however, mild moisture, that constitutes the peculiarity of the Corsican climate, the peculiarity which renders it suitable to some forms of disease. In Ajaccio, I believe, we find the mildness and moisture of Algiers without having to cross the entire width of the Mediterranean to reach it.

Last winter, 1868–9, there were a considerable number of English and Germans at Ajaccio, and the accounts I have received are very variable, and very difficult to conciliate. It strikes me, however, that there was the general feeling of dissatisfaction with the accommodation and supplies, which is usual in a young colony, and which time will modify, as the resources of the place are improved. It was so at Mentone during the early years of my residence there; complaints about food and accommodation were loud and numerous. I am also of opinion that some of the dissatisfied members of the community ought never to have gone there at all. They went, on their own responsibility, to a mild, rather moist and relaxing climate, when they should have gone to a mild, dry, bracing climate, such as that of the Riviera or east coast of Spain. Several medical friends of mine have passed the winter at Ajaccio. One, a few winters ago, was quite satisfied, and spoke in warm praise of the climate. Another, last winter, at first thought and published that he had found the pearl of pearls, the real Eldorado, and now he has gone to the other extreme, and is equally vehement in dispraise. Which am I to believe? Dr. Pietra Santa, one

of the private physicians of the French Emperor, who was sent to Ajaccio in January, 1863, subsequently to the publication of my account, to investigate scientifically its climate, has published a report, founded on a four months' residence, altogether favourable.

Dr. Bierman, an intelligent German physician, who has permanently settled at Ajaccio, and who ministered last winter to the health of his countrymen, writes that he is quite satisfied with his winter experience, that the climate has more than answered his expectations, and that his countrymen have done very well. Germans, as a rule, are much more easily satisfied as regards the comforts and elegancies of life than the English. Thus, they have probably contrived to be comfortable and happy, although the English standard of comfort, and the expenditure it entails, have not yet been reached. When the new hotel now in contemplation has been erected, which I am told will soon be the case, and the expenses of living have increased in proportion to the advantages gained, as they always do, our countrymen will probably be more contented.

In definitive I would advise no invalid who peruses these pages to fix his winter abode at Ajaccio without placing the above facts before some trustworthy physician. I would also advise no one to winter there as yet—until better hotels have been established, and more choice fare is attainable—who is really very ill, who requires great comforts, and very choice fare, or who has never travelled on the Continent, and is totally unaccustomed to continental habits and food. Those who do go must still look upon themselves as pioneers of progress, helping to open out and clear up a partially-known country for the benefit of those who follow as well as for their own. All such pioneers run a little risk, for in that very risk lies the chief charm.

At Ajaccio there is a nucleus of very good society, both Corsican and French. There are the préfet, the judges and magistrates, the officers of the garrison, the leading engineers, and the resident native families. All appeared to be most amicably and cordially disposed to strangers. To crown the whole, there is a very tolerable Italian opera company throughout the winter season, and the subscription for one of the best boxes, holding six, is only about eight or ten pounds.

A great and mysterious charm about this little southern town is its having been the birthplace of Napoleon. It was here also that he spent his childhood and his early youth, until, at the age of fifteen, he entered the Military School of Brienne. As I have stated, he returned yearly to Ajaccio to pass the vacations in the bosom of his family, and was mixed up with all their feuds and Corsican feelings until fairly launched in his great military career. Then leisure ceased for the great man. His mind was ever full of ambitious and grandiose plans, his time and thoughts ever engrossed by their fulfilment. His quiet little native town and his Corsican nationality passed into the background, only to be fully remembered when chained to another island—the ocean rock of St. Helena. His family followed his wonderful fortunes—his brothers to become kings, his sisters to marry princes.

Our first visit the day after we arrived at Ajaccio was to the house of the Napoleon family, in which the hero was born. It is a good-sized, comfortable house, situated in the very centre of the town, looking out on a small court or garden, and so surrounded by taller houses that there is no view of the sea or mountains from any of the windows. Its size and position show what we know to be the case—that Napoleon's family must have been one of

the leading families of Ajaccio. The house has been renovated by the present emperor, the old family furniture has been sought out and brought back, and everything has been replaced as much as possible in the same position as when the rooms were occupied by the Bonapartes in former days. Thus every article of furniture and decoration is a souvenir. The bed in which Napoleon was born is seen in a room on the ground-floor, as also the room and bed he occupied during vacation visits to his home when grown up. The house is shown by an old female servant of the family, who knew and attended Madame Letitia, Napoleon's mother, up to the time of her death.

There is an old and rather handsome church, called the cathedral, very near the family mansion, which no doubt is exactly in the same state as when he was daily taken to it as a child by Madame Letitia. I was at Ajaccio on the 5th of May, the anniversary of Napoleon's death, and attended a mass given to his memory, at which all the notabilities of the place were present. As I sat listening to the solemn strains of the organ, I could not help fancying I saw the future emperor as a child, kneeling at his mother's side, in the very place where he, no doubt, had really knelt hundreds of times. All was changed, all were gone who then lived, but the old church remained as in former days.

Ajaccio is full of the memory of Napoleon. While sauntering through its quiet, sunny streets, with the beautiful bay and mountains generally in view, I could not help thinking that for years his steps had trodden the same ground, as a wild, impulsive child, and as a restless, ambitious youth. The contemplation of the grand natural beauties that surrounded him, and the constant brooding over the history and misfortunes of his native country, no

doubt contributed to build up the rugged, indomitable character that he afterwards showed.

The present emperor, and especially his cousin Louis Napoleon, show strong Corsican sympathies. The latter has an estate near Calvi, which he frequently visits for shooting. Under their auspices, the town of Ajaccio is beginning to show that it really is the birthplace of the present imperial dynasty. A very chaste and beautiful marble chapel has been built as the mausoleum of several members of the imperial family. A museum and picture gallery has also been erected, and is a fine monumental building. In it I saw, finally arranged, a large gallery of paintings left to Ajaccio by Cardinal Fesch, which had long been stowed away in lumber rooms. Some few are good, but the greater number are second rate.

The names of the streets and squares are essentially Napoleonic, being mostly derived from some member of the imperial family. In the market-place, behind a handsome stone fountain, is an allegorical statue, said to be meant for Napoleon. One side of this market-place, which looks on the bay or gulf, is bounded by a solid granite quay, that enables small vessels to moor close to land. This market-place is flanked by tall, well-built houses on one side, and by the town-hall on the other—a very respectable structure. On each side is a double row of handsome plane trees. The view of the blue bay, with its hemicircle of grand mountains in the distance, is indescribably beautiful from this point. This magnificent bay is protected from all winds but the south-west, and in its western or upper region there is a mole or jetty which gives the requisite protection even against this wind. More important works, however, are in contemplation, and Ajaccio is to be made, ere long, one of the finest and most sheltered ports in the Mediterranean. A jetty

is about to be thrown out from a rocky point projecting into the bay, that will protect the anchorage, now exposed to a heavy swell from the south-west.

In the Grande Place, facing the sea, has been placed a fine equestrian statue of the first Emperor Napoleon, surrounded by those of the "four kings," his brothers. These statues were erected by a national subscription, and were inaugurated by Prince Napoleon a few days after I left Ajaccio (1865). I much regretted not being able to remain for the ceremony.

Ajaccio is the only town of Corsica that appeared to me thoroughly eligible as a winter residence. Perhaps I may except Bastia, but I do not think Bastia is without objections. The climate is evidently exceptionally warm; for the valleys of Cape Corso, in the immediate vicinity of the town, contain Orange and Lemon trees, the hill sides are covered with large Olive trees, and Lycopodium grows in all moist situations. But Bastia must be exposed, from its situation, both to south-east and north-east winds. Even the south-west wind blows with great fury at times during the winter, passing over the mountain ridge that separates Bastia from the Gulf of San Fiorenzo, fifteen hundred feet high, and falling on the eastern side with such violence as to cut off the heads of cereals, to carry off the roofs of houses, and to confine the inhabitants of the town to their houses. Then there is a small, tideless port, which is so closed in that the water becomes nearly putrid, and no part of the town in its vicinity would be eligible.

There is, however, a row of new, handsome houses on the principal "Place," facing the sea, which would constitute a very eligible residence if accommodation in them could be obtained, which I doubt, as they are all occupied by the leading Bastia families. The view of the sea from

these houses is very beautiful, with the three mountain islands of Elba, Capraja, and Monte Cristo rising out of the waters at a distance. Other houses, however, are being built in the same locality. There is a small but clean and tolerably comfortable hotel—the Hôtel de l'Europe—on the Grande Place, which is without question the best in Bastia.

Bastia is the most thriving, populous, and commercial town in Corsica. A considerable amount of shipping yearly enters and leaves its port, and there is more enterprise and activity shown by its inhabitants than by those of any other part of the island. This is explained by its proximity to Italy, with which Corsica has always been intimately connected, and also by the fact that Bastia is the port for an extensive range of fertile country, for the greater part of the eastern division of the island. Ajaccio has scarcely any commerce, and is only the natural outlet of one or two of the valleys comprised between the spurs or western buttresses of the central granite range. Bastia thus must ever be the principal commercial port of Corsica, and Ajaccio, although the government capital and capable of being made a magnificent harbour, will always occupy, commercially, a second-rate position.

The drive along the road at the foot of the Cape Corso mountain, which extends from Bastia quite round the cape, is very lovely. On one side the blue Mediterranean, on the other the mountain, the gentle slopes of which are covered with Olive trees. Every few miles a ravine opens out, and in the upper part of this ravine, luxuriantly fertile, is always seen a village, enlivening the sides of the mountain with its church and its white houses grouped around the former. Each of these villages has its marina, or little port, on the shore. About six miles from Bastia, on this

road, is one of the most interesting limestone stalactite caverns in existence—that of Brando. It may be recommended to visitors as an agreeable excursion.

The mountain of Cape Corso and its ravines have a great local reputation for their wines. My friends at Bastia repeatedly excited my envy by the choice specimens of these unknown wines that they offered me. Of late years but little has been made, owing to the ravages of the oïdium, which the Corsicans were long unable to conquer. But new Vines are now being extensively planted everywhere, throughout Corsica, to replace those that have been destroyed by disease. In a few years large quantities of good wine will be again made, both in the Cape Corso region and in others.

In the southern regions of Corsica the oïdium is still unknown, and perhaps the best wine of Corsica is still produced there in considerable quantity, the Vin de Tallano. This wine is made in the vicinity of Sartene by M. Giacomoni, at Sta. Lucia di Tallano, and is really good and choice. It resembles a full-bodied Burgundy, although it has a peculiar rich flavour of its own, and has a great reputation in Corsica.

On the north-eastern extremity of Cape Corso a valley opens out, rather wider and more fertile than those previously passed. Through this valley a road has recently been carried over the mountains, at an elevation of 2000 feet, which, descending on the western side of the Cape, soon reaches the village of Pino, the native place of my friend M. Piccioni. We started from Bastia one forenoon, and by dinner-time reached his ancestral domain, an old square fortified castle. In this castle his progenitors have lived for above four hundred years. The next day was devoted to wandering about the picturesque old village perched a thousand feet above the sea, which

lay smiling at our feet in one of its placid moods, merely fringing the rocks, the precipitous coves, inlets and bays with a thin margin of white foam. Wherever we went, I saw evidence of an enlightened impulse, given by a master mind—evidence that the enthusiastic and patriotic feelings of my friend were a reality, that an oft-repeated quotation of his from Metastasio—

"Ad ogni cuore ben nato quanto la patria è cara,"

was with him a true heartfelt sentiment. Roads had been made, houses erected, the mountain side covered with new plantations; in a word, there was progress on every side. One of the visits I made with my friend was one that I shall never forget. It was to the Roman Catholic priest, who, said M. Piccioni, was a true Christian, a great friend and ally of his in all good works, in all attempts to improve the intellectual, moral, and social state of the surrounding villagers.

We found the priest a tall, intelligent, fresh-looking, gentlemanly man of about forty, with a kind, good-natured, simple expression of countenance. He was in the garden of a little square stone house that had been recently erected for him in a most picturesque situation. I never saw a man more pleased with a new residence. He showed us his vegetables and his flowers, and all the simple, naked rooms of his presbytery, which he clearly thought a palace. We had to sit down opposite each window to admire the view, the effects of rock, mountain, sea, and clouds, to all of which he very particularly drew our attention. Then we were invited to partake of some refreshment, and had to drink wine he had made from his own vintage, and to eat bread made from corn grown on the mountain side. We talked firstly about the schools, and the sick poor, respecting whom my friend inquired. By degrees the conversation glided on to

Seneca's Tower, which is just above the village of Pino, and from that into old classical times. I soon found that he was a sound classic, had read and re-read all the Latin poets and historians, and was indeed much more familiar with classical literature than we were. He had been educated in a seminary in the island, had never been out of it, and would probably live and die a poor village priest, in an out-of-the-way village at the extremity of Cape Corso, far from the world and its vanities. But he was happy, quite happy, he said, with his modest duties, his library, his old classical friends, his musings on human nature, the same from century to century, and his little garden and glebe. I was sorry to leave him at last. M. Piccioni told me that there were very many such as he throughout the length and breadth of Corsica, good and true men, intellectual as well as pious, living thus in the present and the past, and humbly doing their duty. I myself have met others in Corsica, in very out-of-the-way places, of the same type, truly good men—men to be respected—for when faithful and true, do not such men really sacrifice all earthly affections and ambitions to their ministry?

The solitary tower to which tradition gives the name of Seneca's Tower, is nearly at the summit of the mountain above Pino. This Roman philosopher, subsequently the master of the infamous Nero, was exiled to Corsica by Claudius, and passed eight years in the island. Seneca, although a stoic, did not bear his banishment with fortitude. He has left records of his sojourn in Corsica in the shape of anathemas against the "wild and barbarous land" to which he was exiled, and of fawning supplications to his imperial master to restore him to favour. He seems to have had little power of appreciating the splendid scenery and the beautiful climate in which he passed

these years of exile. His thoughts were ever on the blandishments of imperial Rome, to which he eventually returned, to become the master of Nero. There the stoic became a court favourite, and amassed a large fortune in a few years. Then he had not only to surrender his newly-acquired riches, but life, to his tiger pupil. He had better have remained an exile even in the lonely Pino tower, in abhorred Corsica.

There is at Bastia—an important fact for travellers—a thoroughly well-informed and experienced medical practitioner, Dr. Manfredi, the surgeon of the civil hospital. He is a skilful operator, and occupies a leading position as such in Corsica. The all but uniform success that, according to my surgical informants, attends surgical practice at Bastia and elsewhere, speaks greatly for the general healthiness of the climate, as well as for their skill.

Dr. Manfredi was educated in Paris, and has now been practising as an operating surgeon in Corsica for a quarter of a century. The difference between surgery in Paris and surgery in Corsica was, he told me, perfectly marvellous. Nearly all surgical wounds heal at once by first intention, and purulent absorption is all but unknown. He has had above eighteen cases of lithotomy, and has been successful in all. Indeed, he said he had such reliance on surgical cases doing well, that there was no operation in surgery that he should hesitate to attempt. On hearing this statement, I concluded that it is all but worth while to go to Corsica expressly to be operated on, in case of dire need.

About thirty miles south of Bastia, in the midst of the Castagniccia, or Chestnut country, in the centre of a highland region formed by spurs of the limestone chain of mountains, is a mineral spring called Orezza, the waters of which are renowned all over Europe. It is a strong

chalybeate, loaded with carbonic acid. This spring is of inestimable value in a country like Corsica, in which the principal disease the inhabitants have to contend with is "malaria fever," or intermittent fever, in its more aggravated forms. The spring is leased to the Vichy Company, who have recently built an hotel and a regular bath establishment. A few hundred feet above the principal spring is another, which combines iron and sulphur, and is very valuable in chronic cutaneous diseases.

Dr. Manfredi kindly took me with him to visit the springs and this part of the island, and our excursion proved most interesting. The village of Orezza, or the greater part of it, is the doctor's patrimonial estate, and he possesses there a manorial fortified house, which I inhabited during our stay, and which I examined with much interest. The outer walls are of great thickness, composed of massive stones simply superposed, and they bear the trace of the strife of past days, bullet marks and smoke. During the hundreds of years that it has been inhabited by the ancestors of Dr. Manfredi, it has many times been attacked and besieged, and repeated but vain attempts have been made to destroy it by fire. The village is situated two thousand feet above the sea, and five hundred above the mineral spring. From the terrace before Dr. Manfredi's house, I counted twenty villages perched on the summit of as many hills, all in situations capable of being defended.

Orezza is one of the regions that was never conquered by Corsica's foreign foes. Surrounded by mountains in every direction, the sides of which are covered with magnificent and very productive Chestnut trees, it has always maintained a numerous warlike, patriotic, freedom-loving, and very idle population, delighting in the noble art of war. It is a part of the Terra del Comune of the Corsican

historians. It was by the sons of this district, principally, that the last battles for freedom were fought against the Genoese, and latterly, against their allies, the French.

The priest, or curé, and the mayor of the village dined with us. I was charmed by their simple cordial manner, and surprised by their knowledge of the political history of Europe, and by the great interest they took in everything that was English. This, I found from my host, was to be explained by the incidents that occurred seventy years ago. As I have already stated, during the last struggle of the Corsicans, under their glorious chieftain Paoli, from 1794 to 1796, they had the warm sympathy and partial assistance of England. Hence, in this region, the last to succumb to French rule, then considered a foreign tyranny, there still lingers a grateful remembrance of England, and of the support she gave them in their extremity, although that support was scanty and inefficient. England had then many foes to contend with, and other duties; so that, although the nation enthusiastically responded to the call of the heroic Corsicans, but little active aid could be given. Several members of my host's family long remained in the English service, in the Corsican Rangers, after the annexation of their country to France.

The mineral spring issues in great abundance from a circular well in the centre of an open building on a small mountain terrace, planted with trees as a promenade. It sparkles like champagne on reaching the surface, and is pleasant to the taste. A number of men and women were bottling it, and packing the bottles in cases for exportation to the Continent, where there is a large sale. This chalybeate, Dr. Manfredi told me, combined with the pure mountain air, is a perfect panacea for the anæmic condition which accompanies and follows severe attacks of in-

termittent fever. Thus, said he, Providence has placed the antidote near the disease. It is also most valuable in cases of chlorosis, or debility from whatever cause.

Many of the upper classes from Bastia and the north-east of Corsica pass the hot summer months here; partly to take the waters of Orezza on health grounds, and partly to escape the great heat of the shore region. They locate themselves, in a primitive fashion, at the houses of the wealthier peasants in the numerous mountain villages. At an elevation of two thousand feet the nights are always cool, and the days, although warm, are said to pass pleasantly under the cool shade of the Chestnut trees. To those of our countrymen who wish to spend the summer in Italy, I think the mountain retreat of Orezza might offer a valuable resource, although I consider the summer heat still too great for consumptive patients.

In these mountain villages they would find simple but comfortable accommodation. I myself visited several of the houses where "lodgings" are let in the summer, and was surprised to find how neat and clean and comfortable they were. The months of May and June might be thus very profitably spent at the Orezza springs by those who wish to combine mountain air with a course of chalybeate waters before returning to the north. Several of my friends and patients have done so, and have been delighted with their "month in the mountains," with the beauty of the scenery, with the cordial simplicity of the mountaineers, and with the results of the mineral water treatment.

Awaking early the morning after my arrival at Dr. Manfredi's hospitable mountain home, and looking out, I saw a crowd of peasant men and women, dressed in their Sunday best, perambulating the terrace beneath the window. On inquiring of a member of my host's family the meaning

of the assemblage, I was told that they were peasants who had heard of the doctor's arrival, and were come to consult him. When he came in for breakfast, I found that he had been busy from six o'clock ministering to their wants; "a few words of advice or consolation," he said, "was all they required. Although anxious and delighted to be of use, the extreme confidence of his fellow countrymen was," he said, "a sad hardship. As soon as his arrival at Orezza became known, they always flocked in from the surrounding villages in such numbers as positively to besiege the house, and to drive him back to Bastia in despair." The key, however, to this friendly persecution, was evidently the kind philanthropic spirit and the great local reputation of Dr. Manfredi.

As we returned home we were repeatedly stopped by "patients" waiting for us on the road-side, enamelled with purple Cyclamen and white Asphodel. They had heard that the doctor had been seen on his way to Orezza, and were waiting his return. One case I well recollect. A poor, thin, pale-faced young man was sitting on a chair, at the road-side, with several relatives around him; signs were made to us to stop, and the case was forthwith investigated. The patient held up to our notice a knee swollen to three or four times its natural size, and bearing the evidence of woful disorganization in the joint. Dr. Manfredi shook his head, and said to him, "My poor friend, all treatment would be unavailing; to save your life the limb must come off. Come to my hospital, and you shall have a bed." The poor fellow's white lips quivered, and he merely answered, "I will come." We then ascended our light carriage, and left him sitting on his chair in the road, and surrounded by his sympathizing relatives. I heard later that he did enter the hospital, had his leg amputated, and is now a healthy young man, although a

cripple. Throughout this journey I felt that my friend's position and mission in remote Corsica was a very glorious one—one that bore with it its own reward, and made up for many of the anxieties and heartaches that are inseparable from our arduous career.

We stopped to breakfast at a roadside inn, where we were very cordially received, more as friends than as paying guests. Here we had more patients to see, both before and after our repast. As we were sitting down, a thin, wild-looking, dark-complexioned man, of about thirty-five, came in, and was introduced to me as a brother practitioner. I afterwards learnt that he was a member of some Italian medical college, and that he practised in the neighbouring villages. His coat was old and threadbare, his shirt had not been changed for many days, and his hands spoke not of daily ablutions; and yet there was something in him that bespoke a refined, cultivated, intellectual nature.

Whilst Dr. Manfredi was seeing his patients, my new acquaintance and I sat down on a log on the roadside, and discoursed of many things. I found his medical ideas often wild and visionary in theory, but practically he appeared to have gained considerable experience of disease. Then he revealed himself to me as a poet, frantically fond of Corsica, his native country, and full of patriotic and poetic fancies about its mountains, its valleys, its climate, and the highlanders, his countrymen. Half an hour passed rapidly, and I was sorry to take leave of the wild, poetic, Corsican village doctor.

I have often thought of him since, so full of mental refinement, of classical and poetical conceits, and yet spending his days and nights for a bare maintenance in ministering to the poor ignorant peasants around him. I have seen some charming little poems written by him, full of sentiment and pathos. Perhaps, however, he is

happier surrounded by the majestic scenery of his native country, which he can so well appreciate, and in possession of the affection and confidence of his simple patients, than many a great city doctor in other countries.

On our route to and from Bastia, we passed along the salt-water pond of Biguglia, through one of the most malarious regions. At that time, the latter end of April, there was no malaria whatever. The country was covered with grass and green crops; it looked, indeed, so smiling and pretty, so much like flat healthy meadow land in England, that it was really difficult to believe that this very region could be one of the pestilential spots from which every one flies in autumn. And yet such is the case; even a passing traveller might all but have guessed that the country was insalubrious, from the complete absence of farms and villages.

On the mountain side, however, to the west, away from the shore, were numerous villages, all at an elevation of one thousand or fifteen hundred feet above the sea-level. They were thus invariably built, I was told, to secure the inhabitants from malaria. The owners of the alluvial shore-plains who reside in them, descend in the morning to cultivate the soil, and then return at night.

The principal agricultural operations on the eastern coast, from Bastia to Bonifacio, are carried on by an emigration of Lucchese from the Continent. They arrive in November, till the soil during the winter months, when malaria is dormant, and return to their own mountains in April. They reach their native villages with a few pounds in their pocket, the result of the winter's labour, but also often with the seeds of fatal disease. The crops are reaped in June, and then the malarious plains are deserted, left to nature, until the cold weather of autumn has rendered them safe, or at least partly so. The Corsican summer

sun is so fierce, that wherever water stagnates, even when deep in the soil and not perceptible to the eye, it appears to produce malaria. The change from intense heat in the day to damp coolness in the night in these districts is constantly attended with the generation of fever.

More to the south there are plains such as those of Aleria, a Roman colony and town in former days, which are even more deadly than that of Biguglia.

Although Corte is in the middle of the mountains, fifteen hundred feet above the level of the sea, and merely traversed by a brawling mountain torrent, I found that malaria fever was rife there. Dr. Tedeschi, the leading medical practitioner at Corte, told me that he thought the fever was constantly developed at Corte and in Corsica generally, in summer and autumn, by a mere chill, quite independently of any malarious influence. Every year he was called to attend very severe cases, brought on by chills experienced from merely sitting out in the evening under the shade of a row of plane trees, in the centre of the town or elsewhere, away from all water. I found the same opinion prevalent among the medical men both of Bastia and Ajaccio.

The experience of the Corsican medical practitioners thus appears to corroborate the views entertained by my esteemed friend Dr. Robert Dundas, and brought before the profession in his interesting and elaborate work, entitled "Sketches of Brazil" (1852). Dr. Dundas proves to demonstration, by numerous facts derived from his lengthened experience of intermittent fever in the Brazils and in other tropical climates, that the purest and most wholesome sea-breeze will often give rise to severe intermittent fevers, when those who are exposed to it are debilitated by previous illness, or by bodily and mental exhaustion, or are in a state of perspiration from severe

exertion. At Bahia the most malarious houses are not those that are exposed to winds coming from the neighbouring marshes, but those that are the best situated according to English ideas, that are exposed, without protection, to a pure, but moist sea-breeze.

Again, Dr. Rennie, in an interesting work, entitled "The British Arms in North China and Japan," says "that soldiers residing in malarious localities and in low situations, often did not appear to suffer, but when removed to the heights, and freely exposed to the breeze, they were struck down with fevers." These and similar cases occurring again and again, led Dr. Rennie to conclude that the low situations produced a debilitating effect and a predisposition to fever which attacked the weakened men directly they were exposed to currents of air. Thus what would have been found invigorating to persons in health could not be endured by these men owing to their weakened state.

Most of the malarious regions in Corsica are on or near the sea-shore, and as there is in summer a very decided sea-breeze during the day, its chilling influence may be an important cause of fever, as in the south generally.

The Corsican medical practitioners, although thus admitting that a chill will produce ague in their climate, apart from the influence of marsh air, give the latter full weight as a cause of fever. It would be difficult to do otherwise in a country like Corsica, for the fever is the most severe and the most deadly where the marshes are the most extensive, as on the eastern coast; whereas it all but disappears wherever full and efficient drainage is carried out. Several regions were pointed out to me, such as San Fiorenzo and Calvi, formerly decimated by fever, and now comparatively healthy, through the drainage of neighbouring marshes.

In our country a chill in summer does not produce ague, but bronchitis, pleurisy, rheumatism, or diarrhœa, but then the human economy has not been previously exposed to intense tropical heat. Still, our marshy, undrained districts, such as the fens of Lincolnshire, are malarious, like the marshes of Corsica, intermittent fever appearing in autumn, apparently without exposure to chills of any kind.

Corte is historically interesting, for, not being exposed to attack, like the shore towns in olden times, it became the patriotic capital of Corsica; it appeared to me, however, one of the least picturesque towns that I saw. The principal sight is an old historical castle worth visiting. On one of my visits to this old castle it was tenanted by four hundred Arab prisoners, taken in war in Algeria, by the French, and therein confined. It was sad to see these children of the desert with their fierce black eyes and swarthy complexions, wrapped up in their bournous or mantles, walking or lying listlessly about the courtyards, dreaming no doubt of liberty, of the sunburnt land of their fathers. Many were leaning over the ramparts, looking steadfastly at the distant mountains, probably in imagination scaling their fastnesses in freedom. Some followed our movements wistfully with the eye, wherever we went, no doubt envying our power of egress. It made my heart ache to look at them, and I was glad to leave the castle. Prisoners in wild free Corsica seemed an anachronism, a sad blot on the land. The poor Arabs had to remain cooped up in this mountain castle one long dreary year more, and then they were liberated, on the occasion of the French Emperor's visit to Algeria.

In the neighbourhood of Corte, at Ponte Leccia, are some copper mines. The proprietors told me that the mines were getting into good working order, and would

certainly prove a very valuable speculation. Indeed, Corsica offers a wide field near home to the speculative; its mines, its marble quarries, its forests, and its vineyards are, no doubt, capable of being worked with advantage.

Isola Rossa, or Ile Rousse, is a small modern town, founded by Paoli in the latter part of last century, with a good port, and weekly steam communication with Marseilles. The coast and country are picturesque, but there is no accommodation for strangers, except the little inn. Moreover, the south-westerly winds must be trying, if we may judge by the inclined trunks of the trees on the shore. The beans and rye were ripe on the 25th of April, and the planes were in full leaf. There is one handsome modern house, like a quadrangular castle of the olden time, belonging to M. Piccioni, the brother of my friend at Bastia, from whom, too, I received great attention.

Calvi is an old seaport, further south, for centuries occupied by the Genoese, to whom it ever remained faithful. Its motto, "Semper Fidelis," may be still seen on the gate. It occupies a high promontory, which forms one side of a very fine and tolerably safe bay. The upper part of the town is a mass of ruins, and has been so ever since it was bombarded in 1794 by Nelson, who there lost an eye. It is quite singular to walk through the streets among the falling walls of houses, some merely shattered, some partly burnt, as if by a bombardment of yesterday only. Below these shell-and-cannon devastated houses are those occupied by the modern town.

Across the small bay is a semicircular plain, a few miles only in depth, and bounded by a semicircle of glorious snow-capped granite mountains. The view from the ramparts of Calvi is perfectly magnificent. From the sides of these mountains run several torrents or rivers, which have,

as usual, converted the alluvial plain into a fever-breeding district. Hence the extreme unhealthiness of Calvi in the past. The drainage and cultivation of some of these marshes has much improved its sanitary condition. The plain is covered with the ever-present maquis, Myrtle, Cystus, Heath, Arbutus, and Lentiscus, and looks as innocent as possible. To render it really so, the torrents would have to be embanked, and the soil drained and cultivated. Wherever this is done malaria all but disappears, even in Corsica. M. Piccioni, of Isola Rossa, has purchased a considerable tract of this land, and is clearing, draining, and cultivating it, as a lesson to his fellow-countrymen at Calvi. The land thus brought into cultivation is turning out most productive, and this philanthropic lesson will eventually prove a most profitable investment.

One of the objects of my visit to Corsica, as elsewhere stated, was to find a perfectly cool summer station for the English consumptive invalids who wish to pass the summer abroad. I found stations such as Orezza, and the baths of Guagno, near Ajaccio, which would do very well for healthy persons, anxious to escape from the extreme heat of southern Europe during the summer months. But these localities are not, in my opinion, sufficiently high and cool to be chosen as summer retreats by the consumptive. The latter, as previously explained, ought, if possible, to keep in a dry, cool temperature, between 60° and 70° Fah. The Corsicans do not feel the want of such a summer temperature, and have consequently made no effort to find it.

On crossing the granite chain on the way from Corte to Ajaccio, we came to a spot between Vivario and Bocognano, called Foci, the most elevated that is passed, which would no doubt do admirably for such a summer sanitarium.

We were nearly four thousand feet high, and had left the maritime Pines and the Chestnuts far below; the trees had become English trees—Beech, Birch, and Larch. The air was cool and pleasant, the sky clear, the mountains very beautiful; but there was only a small, dirty, roadside inn. No doubt the Ajaccians would shudder at the idea of spending their summer in such a locality, and yet it is admirably situated for a cool mountain pension, or sanitarium, such as Switzerland abounds in.

Nothing would be more enjoyable than to pass a month or two in midsummer, in the pure mountain atmosphere of such a spot, in the very midst of the primeval forest. The Larches line the sides of the all but perpendicular mountains around, climbing in serried ranks towards the sky, until they reach the snow line. The Beeches in the valleys and ravines are growing as luxuriantly as in our own country, and form a glorious shade from the still ardent sun. The moss-covered ground is enamelled with wild flowers, and the entire scene is enlivened by brawling torrents and streamlets of pure crystal water, dashing over the rocks in their impetuous descent to the plains. I have twice crossed this glorious mountain pass, and each time the irrational impulse has been strong upon me to let the carriage go on alone, and to take my chance in the wilds of these Corsican mountains.

The inhabitants of the more southern regions of continental Europe do not seem to possess, in the slightest degree, the roving, adventurous spirit of our countrymen. They do not understand our love for the picturesque, our readiness to undergo any amount of privation and fatigue in the endeavour to find it. I well remember one of the most accomplished, cultivated, and refined Italian noblemen I have met with saying to me "that he could not comprehend the English going up a mountain merely to

come down again. It appeared to him all but an act of insanity. He was ready to undergo any amount of fatigue or exertion for a geological or botanical purpose, but as to exhausting himself as we did, merely to look round him from the top of a mountain at naked rocks and arid stones, he could not do it, and did not understand its being done."

Hence the higher classes in these countries are rarely found away from home, except in cities or in watering places, where they congregate for a tangible purpose, health and society. As a necessary result, in the wildest, most retired, and at the same time the most beautiful regions, there is no kind of accommodation; for none but peasants or roving Englishmen ever visit them.

The *routes forestières*, or forest roads, which have been and are being constructed, in order to open out the hitherto inaccessible primeval forests in the higher mountain regions, might be made the means of a very enjoyable tour. A light carriage, char-à-banc or waggon, could be chartered at Bastia, and equipped with supplies, as for a journey in South Africa, with hammocks and other gipsy equipments. Thus armed the wilderness might be encountered, and what with local resources, and the assistance of the village curés or priests, the Corsican highlands could be explored in every direction. Had I leisure I would certainly carry out this plan; the season should be May or October.

A long way down, on the western slope, we found a favourite hot-weather retreat, Bocognano. It is a Chestnut country village, like Orezza, and assuredly a very hot place, for we were half roasted in April, during the time we remained for breakfast. It is true the Chestnut trees were not yet in full leaf, and gave no shade.

The baths of Guagno, about twenty miles north-east of

Ajaccio, are greatly renowned in Corsica. The waters are sulphurous, and much frequented in summer. It is to the fashionable world of Ajaccio what Orezza is to that of Bastia. Guagno is prettily situated, about three miles from Vico, in a "fold" of the mountain, amidst a forest of Chestnut trees, and is in the immediate vicinity of one of the largest and grandest of the primeval forests of Corsica, that of Aïtone. Evisa, about fifteen miles beyond Vico, is the nearest point for the forest. The present termination of the road from Ajaccio to Calvi is at Ponto, the next village by the road.

At Vico, the ladies of our party were most hospitably received by a Corsican gentleman and his family. A picnic excursion to the forest was proposed and accepted, and one of our companions, a young lady from Yorkshire, accustomed to follow the hounds and a perfect equestrian, greatly surprised the escort, composed of some score or two of Corsican gentlemen. Mounted on a strong mountain pony, dressed in a scarlet Garibaldi and an improvised habit, she valiantly took the lead, and kept it throughout a ride of more than thirty miles, there and back, over hill and dale, up and down precipitous roads frightful to look at. Our brave and much admired young countrywoman returned, I am happy to say, in triumph, safe and sound. This is more than can be said of all her followers, for some awkward tumbles took place among them; but, fortunately, they were unattended with any serious consequences.

The road from Ajaccio to Vico is grandly beautiful. On leaving Ajaccio it climbs up the sides of one of the lateral granite spurs, to a height of 2200 feet, and then descends into a most lovely and picturesque valley, Liamone by name. It is shut in by the high forest-covered mountains to the east, by the blue sea to the west, and

north and south by the granite buttresses, one of which we were then crossing. The first glimpse of this wide smiling valley was a revelation of the social condition of its inhabitants, and of this part of the island in general. Before the road on which we were travelling was made, those who dwelt in it must have been quite shut out from the world, even from the little Corsican world. The traditions, customs, and ideas of their ancestors must have been transmitted from one generation to another, with little or no change, and century after century would thus pass without modifying the national characteristics.

In one corner of this smiling valley, on a promontory that juts into the sea from its north-western extremity, there is a little village called Cargese, which strongly illustrates these facts. In the fourteenth century several hundred Greeks, flying from Turkish tyranny, were allowed by the Corsicans to land in this remote spot, and to found a colony. Such as it was then, it is to this day, a Greek colony. The descendants of the first settlers have retained their religion, their language, their dress, their customs, without mixing with the surrounding population. It is a village of Attica, lost in a corner of Corsica.

At the little mountain village of Vico, for such it is, although dignified by the name of town, we were hospitably received at a small and unpretending inn. The servant maid, who served us at supper, a pretty girl of seventeen, had thoroughly Grecian features, and on my asking her whence she came, she answered from Cargese. On inquiring as to whether she meant to marry at Vico, she said no, she must go home for that.

The road that is to encircle the island has not yet been completed beyond Ponto, owing to the extreme engineering difficulty of carrying it through this, the wildest, most mountainous, and most inaccessible part of the entire

coast. The primeval forest here descends all but to the sea-line on the west, whilst it climbs up the mountain peaks and buttresses on the east, and communicates with nearly all the grandest and most inaccessible forests of the island. In the nearest forest, that of Aïtone, are innumerable larches one hundred and twenty feet high, with a diameter of nine feet at their base. They push their vigorous roots in the crevices of the hardest rocks, on the most precipitous regions of the mountain, and then rise straight as an arrow, pointing to the clouds. The hardy pedestrian would find in these forest-clad mountains innumerable sites combining "the wild and savage beauty of Swiss scenery with the isolation, the silence, of the primeval forests of America." (Marmocchi.)

On our excursion to Vico we had an adventure, which may be worth relating as an illustration of Corsican travel. At the stage which commences at the summit of the mountain ascended on leaving Ajaccio, we took up, as driver, a wild, half-intoxicated young Corsican, whose looks none of us liked. When on the box he found that he had lost his whip, but regardless of the very important fact, started in grand style. We were descending by a road several miles in length, from the summit to the base of the mountain. Gradually the speed of the horses increased, but instead of restraining them he urged them on by wild shouts and gesticulations, until the heavy diligence flew down the steep descent. In vain we tried to make him moderate his speed; both he and his horses seemed too excited to listen to reason, and we continued to plunge madly downwards, turning sharp corners in such a manner as to threaten instant destruction. We saw that he could no longer stop the horses if he wished it, so concluded to leave him alone, and to take our chance.

The horses were three in number, driven abreast; the centre one a powerful stallion. As we neared the valley, maddened by the speed and the voice of his wild driver, he suddenly jumped on one of the horses by his side, like a wolf on a deer, fastened his teeth into each side of the back, and bit him so savagely that the blood spurted on the road on both sides. The poor horse, thus attacked, reared and plunged, writhing and backing. The diligence, during the struggle, was swayed in every direction, and finally backed to the side, where there was a precipitous descent. We should no doubt have been thrown down it had not the conductor, a brave old man, managed to jump down, and with our assistance to get hold of the horses' heads. The driver, having no whip, was quite powerless. The side horses were so terrified to be near their savage companion that we had great difficulty in reaching the end of the stage.

On the return journey we found our wild driver waiting for us, but I had heard in the meanwhile, at Vico and elsewhere, that he was a brutal, drunken, good-for-nothing youth, the terror of the road, that he daily imperilled the safety of the diligence, but that he was known to be of so violent a character that no one durst complain of him, for fear of the consequences. I and my friends at once refused to let him keep his seat on the box, and insisted on the previous driver taking us through to Ajaccio. With great difficulty we made him dismount, and got to our journey's end safely.

On arrival I immediately lodged a complaint against this man, and to make sure, also sent it to head-quarters at Bastia. I must confess, however, that I and my friends were not sorry we were leaving Ajaccio the next day, having a vague idea, with Corsican vendetta staring us in the face, that we had made the place rather "too hot" for

us. I must add, however, that this is the only instance in which I had reason to complain of the drivers during my three excursions in Corsica. I believe that it was quite an accidental circumstance, for in every other instance I found them courteous, and although rather daring, prudent and careful.

The southern regions of Corsica, both on the west and east side of the central mountain ranges, are much more wild, more uncultivated, and more sparsely inhabited, than the northern. On my third visit to Corsica, in the spring of 1868, I devoted the greater part of the three weeks I had to spare to a tour in these the southern regions, which I had not before visited, thus completing the survey of the island. I travelled from Ajaccio to Sartene, made an excursion into the mountains at Sta. Lucia di Tallano, and then pursued the journey from Sartene to Bonifacio, and from thence to Porto Vecchio and to Bastia by the eastern coast.

Every mile of the road from Ajaccio to Sartene is beautiful in the extreme. The Bonifacio diligence, leaving Ajaccio early in the morning, reaches Sartene in the evening, where an inn is found at which the night may be passed with tolerable comfort.

Granite buttresses continue to strike out from the central chain to the western sea, enclosing lovely valleys. Thus the coast road is a perpetual ascent and descent. When it has laboriously ascended one of these granite spurs, it immediately descends, a brawling alpine river is crossed at the bottom of the valley, and then it again ascends the next buttress. The road has been made within the last few years, at immense expense and trouble, by blasting and cutting a kind of shelf or terrace in the side of the mountain, alternately through solid granite, compact granitic sandstone, and loose granitic gravel.

Owing to the great depth of the cuttings thus made on the inner or mountain side of the road, the character of the root vegetation is very clearly revealed at every step, and some instructive facts are brought to light. Thus the vigorous growth of these shrubs on the flanks of mountains, baked by a southern sun during a long summer, with little or no summer rain, is explained by the length and strength of their long fibrous roots. They descend right through compact gravel or sand, through crevices and faults in the sandstone or granite rocks, imperceptible to the eye, to a depth of two, four, six or more feet. In many instances they appear to pierce the very rock itself, and thus it is, no doubt, that they find the moisture necessary to their existence.

We see the same feature in root developments in sandy districts at home, when recently opened out by a railway cutting. The roots of the common Brake Fern, the Pteris aquilina, and of the Gorse and Heather, descend to a great depth below the surface. My garden in Surrey is of this character, an arid sand, and I find few or no plants flourish in it, unless they have long fibrous or "tap" roots (such as Eschscholtzia), which can go down all but any depth for moisture and nourishment. The heavy autumnal and spring rains, penetrating deeply into the soil and into the crevices and cracks of the Corsican rocks, provide moisture to plants even during the protracted droughts of the southern summer. Where no rain falls at any time of the year, as in some parts of the coast of Peru, there is said to be no spontaneous vegetation whatever. The absolute necessity of heavy winter rains, even in a dry climate such as that of the south of Europe, to enable crops to be raised and fruit trees to produce fruit, is illustrated by deficient harvests after winter drought. If the winter rains are much below the average,

the rain does not penetrate much below the surface, so that the roots of the Olive and Orange trees, which descend rather deep, are not moistened. When this occurs the trees live, but no fruit crop is produced the following autumn.

I found great anxiety expressed in Corsica on this occasion about rain, the winter having been a very dry one. It was generally stated that if the rain did not come within a fortnight, and rain cannot be depended upon at this season of the year, the crops would be seriously compromised. Although one-eighth of the island is still covered with primeval forests, the question is everywhere discussed as to whether the mountain sides in accessible places have not been too freely cleared of their timber. The clearance of forest land in France is generally acknowledged, by all competent authorities, to be the principal cause of the disastrous droughts in the southern provinces, as well as of the constant inundations of all the large rivers. The French Government is therefore taking active measures to have the mountain sides replanted. At Ajaccio I heard that hundreds of sacks of seeds of the noble Corsican Pinus Larix are annually exported to the Continent for that purpose.

In April in Corsica the road-side in the valleys, especially under Chestnut trees, as I have stated, is enamelled with the purple Cyclamen. Its lovely flowers are seen in as great profusion as Daisies with us in the regions where the soil is congenial. On trying to get up some bulbs with a pocket-knife, I found that they were generally so deeply imbedded in the soil as to be nearly unattainable (a foot or more). With us the Cyclamen is usually planted at the top of the pot, but this mode of cultivation is evidently not necessary, as Nature does not follow it. In the wild state the bulb is covered by successive layers

of dead leaves, and thus becomes deeply buried. I believe that planted in rich, light soil, a foot from the surface, in our gardens, it would escape winter frost, prove hardy, and be a great ornament in early summer.

The next morning my future host, M. Giacomoni, Mayor of Sta. Lucia di Tallano, with whom I had promised to spend a few days in his mountain home, arrived before I was up. After partaking of a capital breakfast, we started in a kind of light spring cart, drawn by two wild Corsican ponies. They rattled down the hill on which Sartene is placed in fine style, and we soon reached the lower part of a valley, crossed the night before in the diligence, up which we had to travel to reach our destination. In the centre of the valley was a lovely little river, about forty feet broad, and on each side smiling grass meadows, and, occasionally, cultivated fields, with Willows and other trees on the margin. It looked like a pretty bit of river scenery in England, and I could scarcely believe my companion when he told me that the district was deadly in summer, that no one could live or work there after June on account of malaria, without risking life. Some years ago some French agriculturalists from the Continent saw this smiling valley, appreciated the depth and goodness of the soil, and its small pecuniary value, bought an estate, and, laughing at the fears of the Corsican peasantry, built a house and began tilling and planting as in the north. They got fever and all died in less than two years.

When we reached an elevation of 300 feet by the barometer, M. Giacomoni turned round, showed me a mill-house, and said, "Now we are out of the malaria region, people can and do live all the year in that house."

Here we had another travelling incident worth narrating as illustrative of the Corsican character. Some

slight alteration was required to the harness, and we both got out. Taking advantage of a moment's liberty, the ponies bolted, and were soon out of sight, leaving us standing in the road, much to the chagrin of my host. There was nothing for it but to walk on in the blazing sun, with the prospect of having to finish our journey, some ten miles, on foot. We had not, however, gone very far, when we met coming towards us two Corsican shepherds, mounted on shaggy little ponies. My friend, who did not seem to enjoy the walk more than I did, asked these men to lend us their steeds, which they cheerfully did. So we mounted triumphantly, whilst they trudged quietly by our side, talking in patois to M. Giacomoni. Two or three miles further on we had the satisfaction of seeing the carriage and ponies undamaged in the hands of a peasant. They had continued at full gallop until they reached a steep acclivity. Then they slackened their speed, and the peasant seeing them without driver stopped them. On getting off our ponies, I thanked the owners, and offered one of them a gratuity. With a smile he pushed my hand aside, saying, "No, sir; a Corsican does not receive a gratuity for a small service rendered. If you were to offer me fifty thousand francs you might tempt me, but I do not want five, I had rather have your thanks." To such reasoning there was nothing to be answered.

Gradually the road became more mountainous, and the little river assumed more and more the character of an alpine trout stream. Still cultivation and fertility followed our track. At last, after a four hours' drive, we reached our destination. I was most cordially received by three very charming ladies, the wife and daughters of my host. With them I remained several days, greatly enjoying their gentle refined companionship, listening to

the annals of this little village lost in the mountains of Corsica. To my young lady friends Sartene was the great town, where they had been to school, where the shops were. None of the family had been out of the island, and the ladies had not even been to Ajaccio or Bastia; they were too far off! Then the mayor and I used to adjourn to the village and talk public matters with some of the wise men, with old warriors, pensioners of the French army, come to end their days in their native village, on the small pittance allowed them. The Corsicans are very partial to the army. It is said that there are now more than a thousand Corsican officers in the French army, and the towns and villages of Corsica are full of old soldiers come back to die in their native mountains. My visit was quite a public event. No Englishman, I was told, had been at Tallano for a hundred years—since the days of Paoli, before the French annexation—so curious but friendly glances followed me everywhere.

At this time of the year Sta. Lucia di Tallano was a little earthly paradise. It is situated at the head of a smiling valley, 1600 feet above the level of the sea, in a region where the oïdium, the Potato disease, the silk-worm disease, cholera, and the summer fevers of the lower regions, all are equally unknown. It looks directly to the south towards the sea, which is concealed from the sight by a coast range of high mountains, and is protected from the north by a semicircle of mountains. The Vine, cereals of all sorts, Grasses, natural and artificial, and every kind of fruit tree, flourish in abundance in the rich soil formed by the breaking up of the granite rocks. The extreme luxuriance of fruit trees, and especially of Almond, Peach, and Apricot trees on the Genoese Riviera, proves to demonstration that chalk and lime suit their constitution, inasmuch as that soil is a mere break-up

of limestone rocks: but their equal luxuriance on this soil—a granitic micaceous schist, mixed with vegetable matter—also shows that they find in it all the elements of nutrition. On each side of the valley, on the higher mountain sides, the Ilex, or evergreen Oak, climbs towards the sky in serried ranks. This tree is one of the principal vegetable products of the island, and alone constitutes many of the smaller forests. When growing in the lower region of valleys, in deep soil, it assumes a large size, and has much of the dignified character of our common Oak, only the foliage is more sombre and denser. The wood is not much esteemed, rotting early, so that it is principally used for making charcoal.

A great deal of the land around is planted with vines, and under the intelligent management of M. Giacomoni, the largest proprietor of the district, these vines are made to produce an excellent wine—the Vin de Tallano. Very like an unfortified port, it improves year by year by keeping, and with age becomes a superior wine. At the outlet of this fertile valley, comprised between two spurs of the mountain, there is a little port called Propiano, whence its products reach Ajaccio and the mainland.

On returning to Sartene I took up my quarters at the inn, hired a species of gig to take me the next day to Bonifacio, fifty-six miles, and then set out to explore the place. This was soon accomplished. Sartene is a small inland town like Corte, at the west base of the southern central mountains, and is separated from the western sea by another ridge. In olden times it was generally in the hands of the national party, and is still inhabited by some of the oldest Corsican families. Like Corte, it is an unprepossessing place, a kind of overgrown village, with some evidence of recent prosperity and progress in the shape of new tall five-storied French houses, very un-

suitable for a hot summer climate. The French do not seem to know better than to build tall Parisian six-storied houses, all windows, wherever they go. The next day I was glad to be off by time, and a very enjoyable day I had, although alone with the driver. The weather was heavenly, the road enchanting, and the country one mass of the spring flowers of sandstone formations. The road, a very good one, winds in and out, up hill and down dale, often coming near the sea, then receding from it, with rocks or hills intervening, and ever the granite mountains to the east. As we approached the southern extremity of the island, I was more and more struck by the conclusive evidence on all sides of glacial as well as of antecedent volcanic action. The granite rocks were torn, twisted, and broken into every conceivable shape, but prominent above all were granite boulders of all sizes, immense blocks as well as small ones, lying, in every direction, one on the other, in indescribable confusion. Evidently they had been dropped by glaciers at this the extremity of the great central granite chain of Corsica. At last there was nothing left of the central mountains but a confusion of these boulders, some of which appeared to have been purposely dropped "by hand" on others larger in size, like a paving-stone gently deposited on a table.

We stopped to rest at midday for a couple of hours at a shed on the roadside where horses are kept for the diligence. It was in the very midst of this boulder drift, and a careful examination of a considerable area convinced me that no other physical fact but glacial action could account for what I saw. No doubt, in the glacial period, glaciers extended all down Corsica, and this would be the region where they would end and form a "moraine."

A little before reaching Bonifacio the granite formation ceases, and the rocks become tertiary, cretaceous.

Bonifacio is a fortified town occupying a promontory, the sides of which towards the sea are precipitous and slightly excavated by the waves, so that it all but overhangs the straits at an elevation of one hundred and fifty feet. It is a mere large fortified village, with narrow streets, large barracks, and a villanous inn. I was very cordially received by M. Montepagano, the mayor, a well-informed, intellectual physician, and by M. Piras, the judge, friends of M. Piccioni of Bastia. These gentlemen placed themselves at my disposal, and took me in a boat to see some splendid caverns in the calcareous rocks, like churches. Here the Bonifacians, during the heat of summer, fish, picnic, and bathe, often spending the entire day enjoying the coolness and freshness of these marine retreats. They also took me to a pretty convent or hermitage in the rocks two miles from the town, where a Benedictine monk lives in a glorious solitude, the picturesque beauty of which I do not think he fully appreciates, from his response to some remarks of mine about the magnificent view and the picturesque rocks which surround him. He, assenting, explained that they so sheltered his garden that he could grow cabbages all summer. M. Piras, my host, who had recently purchased a large extent of the "maquis," through which we passed on our way to the hermitage, was full of plans for its redemption. The great difficulty he said was the labour question.

The Bonifacians, however poor, had preserved the habits of their ancestors when the town was a fortified city, often besieged. They lived inside, kept donkeys, and rode out to work in the country, every morning. This destroyed all interest in their labours, making them idle and ever ready to shirk work, to remain in the town that they might drink and gossip with their wives. The latter and the children, on this system, brought nothing

to the common fund, and acquired habits of idleness difficult to eradicate.

I was anxious to pay Garibaldi a visit at Caprera, on the other side of the Straits; so my new friends placed the government cutter at my disposal for the cruise. Unfortunately there was a dead calm, and after waiting twenty-four hours for wind, I was reluctantly obliged to give up all idea of the intended excursion, to take leave of my hospitable friends, and to embark in the diligence for Bastia by the eastern coast. This journey takes twenty-four hours, a night and day, but I divided it. I had an introduction to Dr. Tavera, the head physician to the penitentiary of Casabianda, a little more than half-way, who gave me a bed and a fraternal reception, and I was thus enabled to escape the night travelling.

The road to Bastia from Bonifacio is a shore road that skirts the entire eastern coast of Corsica, from south to north, and seldom loses sight of the sea. For the first few miles out of Bonifacio the chalky soil continues, then the granite, sandstone, and gravel make their appearance, and with them the brushwood, or maquis, Cistus, Cytisus, Lentiscus, Dwarf Ilex. I was on the imperial or top of the diligence for the view, sitting next to the conductor, who had a gun at his side. It was, he said, in order to take a shot at any game that might chance to cross the road. In winter he often bagged hares, birds, and sometimes wild boars. Two of the latter actually crossed the road, but at too great a distance to allow of his showing his skill. On the road from Sartene to Bonifacio, we had travelled all day without meeting a single carriage or cart, and not a dozen pedestrians. It was pretty much the same on the eastern road. The country was lovely, smiling with nature's gifts, but as to inhabitants, they were few and far between.

Porto Vecchio was reached in a few hours. It is at the bottom of a fine bay, and in olden, classical times, was a seaport of some importance. Now it is a mere village, the centre, however, of an extensive district. On the land side it is surrounded by marshes, which make it so unhealthy, that in summer, nearly all the inhabitants go up to the mountains. Those who remain to keep house, all but invariably get fever; it is the penalty they pay for taking care of the town.

Soon after leaving Porto Vecchio, we entered upon the fertile, productive, calcareous plains which lie at the foot of the eastern cretaceous mountains. The vegetation was that of rich alluvial meadow-land in England, and it was difficult to believe that we were passing through a district so malarious, as to be all but uninhabitable during the summer months. But the paucity of villages and of inhabited houses along the road was very significative, as was, on the other hand, the presence of numerous villages on the Olive-clad mountain to the west.

I arrived at the penitentiary of Casabianda late in the evening, and was not sorry to see the diligence move on, whilst I was to enjoy the hospitality and companionship of one whom I knew to be an intellectual Corsican gentleman. Dr. Tavera is one of those pioneers of social progress and civilization of whose devoted and enthusiastic labours the world knows little. At the head of the penitentiary, in which are confined a thousand criminals of the most dangerous class, his difficult but praiseworthy task is to reclaim them, and to accomplish this arduous undertaking, by conquering pestilence and disease, and by taking the sting out of fair nature run riot. I had a long conversation with the doctor that night and the next day about his labours and about malaria and fever in Corsica, and his experience confirmed my previous convictions.

As I have already stated (page 306), on the authority of my friend Dr. Dundas, and others, it is an undeniable fact. that in warm climates intermittent and remittent fevers may occur where there are no marshes, as a mere result of a chill in an organization weakened by intense and protracted heat. It is possible that such chills may be the principal or sole cause of these fevers, even in low, damp, reputed malarious regions. Such, indeed, is the opinion of a very enlightened French author, Dr. Armand, who was many years with the French army in Algeria, and has written a most valuable work on the climate and diseases of that country, to which I shall have occasion to refer when describing my own Algerian experiences. Still the fact remains that low-lying, damp, swampy regions in tropical, semi-tropical, and even northern countries are so decimated by these fevers that the existence of a malaria poison has been universally admitted by the medical profession. In the present state of science, therefore, the safest plan is still to speak of malaria as the poison which generally produces intermittent fever.

In this, my last visit to Corsica, my attention was mainly directed to this question of malaria and fever. Having been, I think I may say, the principal agent in opening out Corsica to the invalid and tourist world, I felt it a duty to clear up the question as far as was possible. The results at which I have arrived, may be embodied in a few words.

Wherever in Corsica a river or torrent descends from the mountains or valleys, and empties itself into the sea, there is malaria, or intermittent fever, in the plains which it waters, from the sea-level to an altitude varying from 300 to 500 feet. This I ascertained with the barometer. On ascending these valleys, when the barometer indicated an elevation of from 300 to 500 feet, I was all but in-

variably told, "Now we are safe; people can live here all the year round." In the more malarious regions of these plains I generally found that we were only a few feet above the sea-level, and that the country was nearly flat. In Algeria the same immunity does not appear to be secured by such an elevation. Indeed, in Algeria I found fever to exist all but everywhere during the heats of summer, which is no doubt much more sultry than that of Corsica. In Corsica the fever sets in towards the latter end of June, increases in intensity until October, and disappears towards the end of October, as the nights become colder. It is often very severe, and assumes occasionally the pernicious form. It complicates nearly all other diseases that occur whilst it reigns. On the eastern coast, where, as we have seen, there are a series of marshes and ponds through which the rivers empty themselves into the sea, the malaria fever is more severe and more fatal than elsewhere.

The few villages and isolated houses in these malarious plains are only inhabited during the cool months of the year. By the beginning or middle of July the harvest is over, and then the entire population abandon their homes and go to the mountains behind, there to occupy other habitations at an altitude of several thousand feet, during the hot months. Well-to-do people leave at the beginning of June, to return at the end of October. The working class leave when the harvest is over in July, and return early in October to till the ground.

Intermittent fever exists not only in Corsica, but in all the Mediterranean islands, and on the mainland, under the same conditions, wherever a river runs into the sea. It would seem that the extreme prevalence of intermittent on the Mediterranean shores, at the outlets of rivers, in a temperate climate, is in a great measure owing to the sea

being all but tideless. When storms come, the sand and shingle are thrown up in great masses at the mouth of the rivers. There is no tidal scour as in the Atlantic, so that the waters of the river are pent up, flow back, and swamp all the lowlands, saturating them with moisture. As dead and decaying vegetable matter is not purified by the action of winter frosts, as in northern countries, the advent of the powerful summer sun produces that state of soil which gives rise to aguish fevers. It requires no marsh or pond to produce malaria; some of the most pestilential plains I saw—plains where human beings cannot live in summer —were as healthy, as innocent-looking in April and May as the banks of the Trent or the Thames. It really appears quite sufficient to produce aguish fever in a tropical country that the land should have been saturated with water, either from rain or overflow, in winter, that there should not be a good fall for drainage, and that the July heat should be reached. The natives of these countries know this, and act accordingly; but northerners do not, and are often difficult to convince, to their own destruction. They cannot believe that a smiling cornfield by the side of a pure running stream, such as they have fished in and bathed in day after day in their youth, during sultry August weather at home, can possibly be in these countries pestilential—a place to fly from as soon as spring is over. They laugh at such reports. They think the natives faint-hearted, lazy cravens, and go about their work as at home, to sicken and die in a year or two. I have already mentioned one history of this kind, but that of the Casabianda penitentiary is still more remarkable.

Casabianda is an agricultural colony of convicts, founded by the French Government in 1864, in order to drain and reclaim some of the ponds and swamps of the Oriental coast. Unfortunately the Government gave the first ap-

pointment of director to a clever energetic officer, but a northerner, who knew nothing of Corsica or of its fever. He thought all he heard nonsense; that the fever was the result of the men working in the heat of the day and being badly fed. So he had the convicts up before daylight, and made them work at the drainage in "the cool of the morning." Then he had them home in the heat of the day for dinner and a *siesta*, and sent them out to work again in the "cool of the evening." The local medical men and the Corsicans around him stood aghast at a plan so contrary to all their experience. For they wait until the sun has dispersed early watery vapours, and return home before sunset. But he was not to be persuaded, reported the medical men under him for "insubordination," and had his own way. The result may be easily foretold. He lost during two years 65 per cent. of the convicts, or 665 out of the 1000 each year. The government was horror-struck, and the colony would have been abandoned had not the stubborn director, most fortunately, himself died of the fever. A more rational man was then appointed, who allowed the medical staff free scope, and everything was reversed. The men were sent to work an hour after sunrise, and brought home an hour before sunset. In the summer they were all transferred to the mountains, and various other precautions were taken, with such good results that last year the mortality, in the same conditions and locality, was only $3\frac{1}{2}$ per cent., or 35 in 1000. These details I had from Dr. Tavera, the present medical superintendent of the penitentiary, to whose energetic efforts much of these results is due. Great works have been accomplished. One or two large brackish ponds and swamps have been already drained, and a vast amount of land reclaimed.

It seems incredible that such perverse stubbornness on

the part of officials in authority should exist, and that masses of human beings should be shouldered into eternity through their blind opposition to professional knowledge. But similar circumstances are constantly occurring. Thus, at the commencement of the Crimean war our troops were located in autumn, by the officer in command, at the side of a malarious fresh-water lake, near Varna, in direct opposition to the medical staff; and soon after the camp was decimated by fever. Only a year ago a regiment was taken to sicken and die at the Mauritius by its colonel, during a severe epidemic of fever at that locality, in opposition to the medical staff.

The practical deductions I draw from these researches are, that any part of Corsica is safe as a residence, either for invalids or tourists, from the end of October to the end of the first week in May; but I do not advise either the one or the other to go to Corsica, or to remain there during the summer months, unless they leave the plains and the outlets of rivers, and settle on some mountain height. As the mountains rise to a height of nine thousand feet, there are many glorious regions where, throughout the heats of summer, a bracing healthy climate and immunity from the intense summer heat of the Mediterranean would be secured. The establishment of some such cool mountain retreat for summer would be a great boon to the inhabitants of the Riviera generally. I am convinced that the Riviera is no more safe as a residence for northerners after the first week in May than Corsica. Although there are no marshes, every year there are cases of fever at Mentone among the patients who remain against my advice.

A large portion of the surface of Corsica—I may say all that is not a primeval forest or under cultivation—is covered with what they call "maquis." I do not like to use the word brushwood or scrub, for such are very common

terms to apply to groves of underwood composed of Myrtle, Arbutus, Cistus, rock-Roses, and Mediterranean Heath, and yet of such is the interminable "maquis" composed. These choice shrubs are the weeds of Corsica, growing wherever nature is left to herself, wherever the soil is not covered with timber. Indeed they soon again turn cultivated lands into brushwood if left uncultivated for a few years.

The existence of this maquis, or brushwood, on all open ground, constitutes quite a feature in the social history of Corsica. It contributed much to the security of the outlaws or banditti. Growing generally from six to ten feet high, and where the soil is good to fifteen or twenty, it offered an all but impenetrable refuge. On the other hand, its invasion of all uncultivated soil in dense masses, renders it difficult and expensive to redeem land, and to bring it into cultivation, once it has fallen into the wild state.

Until within the last few years all cattle, to whomsoever belonging, had a right to pasture in the maquis. The result was the existence of roving flocks of sheep or goats, entrusted to shepherds or belonging to them, that passed from one part of the country to the other according to the season. These flocks committed great depredations, especially the goats, and rendered husbandry difficult and precarious in the districts which they visited. Goats are so nimble and light-footed that no ordinary fence will keep them out of a field, nothing short of a ten-feet wall. I found them everywhere in very bad odour. It is in reality the condition of an unsettled country. Many parts of Spain are to this day a desert from this cause.

A law has, however, been passed, prohibiting what is called the "libre parcours," or free pasturage. No cattle are now allowed to pasture in grounds that do not belong

to their owner, or that are not let to him, or to roam untended. This necessary law has been of great service to agriculture, but, like all progress, it has its painful side, for I was told by peasants that they could now get no meat. It is like enclosing our commons. The peasantry who did not own land had flocks which they drove into the maquis, and on the products of which they partly subsisted. Now they are reduced in a great measure to their own labour.

The milk of the sheep, as well as that of the goats, is largely consumed as an article of diet, both in the shape of milk and in that of cheese. It is, I was told, a most important resource, especially in the mountain districts. Would not our own Highlanders find in the milk of their sheep a valuable article of diet? It is, and has been, consumed from time immemorial all over Asia in mountain districts, and is everywhere greatly esteemed. The large flocks of North Britain would offer a bountiful supply of this valuable article of food, and the famines which decimate the Highlands might thus be rendered less serious.

The Corsicans mix the milk with chestnut-flour. The chestnuts are dried in an oven when they fall, in the autumn, and when wanted ground into flour. With this flour cakes are made, spread on chestnut leaves, which, when baked, constitute their principal food. To strangers the cakes taste sweet and insipid, but the natives are very fond of them.

In the great primeval forests are to be found wild boars and small game in abundance. In the higher mountains the native race of wild sheep, called mouflons, are met with. Their presence in the mountains is a strong attraction to enthusiastic sportsmen. In the alluvial plains on the eastern coast game abounds, and in the autumn and winter all kinds of water-fowl are met with in profusion. In the early autumn season, however, these latter districts

are so unhealthy that the pursuit of the game would probably be followed by severe fever. Game, large and small, is more abundant in the southern and eastern parts of Corsica, because they are the wildest and most thinly inhabited. The long prohibition of firearms, and of legitimate sport, has not tended to increase the stock of game in the neighbourhood of the towns and in the more populous parts of the island, but rather the reverse. Not being able to shoot game as heretofore, the entire agricultural population have devoted their energies to trapping, and, according to report, with such success as to have sensibly diminished its numbers.

Such I found Corsica. To me on each of my three visits it has proved a most enjoyable and fascinating country. The ten or twelve weeks that I have thus spent travelling in this lovely island have been among the pleasantest of my life, and I trust that the description given will lead many to visit its hospitable shores.

What I have said will show there is in Corsica much to study and interest, as well as much to admire. It is new untrodden ground, a country in a state of transition, emerging from the barbarism of the Middle Ages in this the nineteenth century, as the Highlands of Scotland did in the eighteenth. The firm establishment of law and public security will surely regenerate the country here as elsewhere. There are not now three outlaws in the entire island; life and property are as safe as in any department of France, or any county of England, and once the fact is known, capital will begin to flow into Corsica and will fertilize it as the Nile fertilizes Egypt. The climate is good, the soil is fertile, the natural resources great; but, although situated at the very door of Europe, all are still dormant for the want of capital.

The French government has done a deal already for this

island; indeed it has cost France many millions in public works since its first occupation, a hundred years ago (June, 1769). The money, however, is well invested, and it is to be hoped that the authorities will not hesitate to complete what has been commenced. Once the roads in course of construction and contemplated are finished, no doubt assistance will be given to the proprietors to bring the valleys into cultivation by drainage, and to secure a proper outlet for the rivers. To keep the rivers open and to preserve the plains from inundation, is beyond the resources or knowledge of a peasant proprietary. It should and must be done by the government engineers, as in the Roman and Grecian states in former days. A channel for the river should be formed and carried into deep water, and its entrance occasionally dredged. Works of this kind have been successfully carried out at the mouth of the river Liamone, near Ajaccio, with great benefit to the adjoining country.

M. le Comte de Grandchamps, an eminent French engineer, has entered at length into this question, and into all others connected with the material prosperity of Corsica, in a very interesting work which I can cordially recommend to those who feel interested in the subject. His book is entitled "La Corse; sa colonisation et son rôle dans la Mediterranée. Seconde édition. 1859."

Several of the most enlightened and energetic Corsican proprietors whom I met with, told me that however anxious they might be to utilize the natural resources and fertility of their country, they could not do it for want of capital, for there was none in the country. They had land, good land, and plenty of it, but no money; so the land remained covered with maquis, and merely gave them a bare physical maintenance. What was wanted was for continental capitalists to bring money into the island. "For instance,"

said one gentleman, "if a capitalist were to form an association with me, advancing, say five thousand pounds, I giving land to the same value, according to present value, my time, labour, and local knowledge, the money paid in by instalments would enable me to clear and to cultivate the land with Vines, Cereals, Mulberry trees, or other crops. In a few years the ten thousand pounds would be worth twenty thousand."

I certainly saw in the neighbourhood of Bastia, perhaps the only town in Corsica where there is any capital, marvellous results from its employment. Land purchased at say four or five pounds an acre, cleared and planted, was said to have become worth five times the money spent on it, in the course of half a dozen years.

I would recommend all who feel disposed to make a tour in Corsica to read carefully Gregorovius' "Wanderings in Corsica, its History and its Heroes." As I have stated, it is a most charming book, even for tarry-at-home travellers. Another useful work for intending tourists, is a little book entitled "Notes on the Island of Corsica, by Miss T. Campbell." It contains a deal of useful information. Murray has, also, lately published one of his valuable guides, on Corsica. For the days and hours of departure of steamers "Bradshaw's Continental Guide" for the month should be consulted, as they vary from year to year. Thus prepared, the traveller will be sure to gain both pleasure and information from an excursion in this most picturesque island.

Those who are afraid of the sea can both go and return by Leghorn and Bastia. Corsica and Sardinia act as a western breakwater to the coast of Italy, so that the channel between the islands and Italy is a much calmer sea than the more open space between Ajaccio and Marseilles. In the spring months of April, May, and June, this

part of the Mediterranean is often calm for weeks together. I should advise no one to go to Corsica in early autumn, on account of the malaria which still prevails in many parts of the coast that the traveller would wish to visit.

The best time, no doubt, to visit Corsica is in the spring, as I did, say from the 10th of April to the 10th of May. In my three visits, extending over nearly three months, I never had one singie bad day, not one day of wind, cloud, or rain. Mr. Murray says that I am too enthusiastic, and give rather too favourable an account of Corsica. I can only add that I have described it most truthfully as I found it in April and early May. I must, however, repeat, that I advise no serious invalid, whose life is actually at stake, to venture, in either this or any other new country, out of the beaten track, not even into Sutherlandshire or the Hebrides, unless on a visit to a local magnate.

It is worthy of remark that all southern localities and towns are more healthy, and consequently safer to visit in spring than in autumn. In spring they have gone through the winter rains and frosts, which have cleansed and purified them. Thus, Rome and Naples may be visited much more safely by pleasure tourists in February, March, and April, than in November, December, and January. Another important point is, that the sea is generally calm at this time of the year on the north regions of the Mediterranean, but not on the south, as I know to my cost. The south of Europe, also, is everywhere much more beautiful in spring than in autumn. In April and May, all that has been written by the poets is indeed realized and found to be true. We may then without reserve surrender our minds to the enjoyment of the "poetic" beauties of early spring, which we can so seldom do in our own northern country.

Gravé par Erhard, 12, r. Duguay-Trouin. Paris.

CHAPTER XI.

SICILY.

"Hæc loca vi quondam et vastâ convulsa ruinâ
(Tantum ævi longinqua valet mutare vetustas)
Dissiluisse ferunt: cum protinus utraque tellus
Una foret; venit medio vi pontus, et undis
Hesperium Siculo latus abscidit: arvaque et urbes
Littore diductas angusto interluit æstu.
Dextrum Scylla latus, lævum implacata Charybdis
Obsidet." VIRG. *Æn.* iii.

THE DEPARTURE—CLIMATE AS SHOWN BY VEGETATION—PALERMO—MESSINA—CATANIA—MOUNT ETNA—SYRACUSE—THE RETURN.

IN the course of the winter of 1862–63, the desire to visit Sicily took possession of me. I had been attending some Russian ladies who had passed the previous winter at Catania, and also some of my countrymen who had spent some months at Palermo. All were loud in praise of these cities, and insisted that the climate of Sicily was much superior to that of the Riviera. Thus the uncomfortable idea occurred to me that after all I might *not* have discovered in Mentone the best locality in which to spend the winter, so I determined to pass a few weeks in Sicily at the close of the season, and to judge for myself.

As the time for departure approached I began to look around for one or two companions. Many volunteers offered, but one by one they all drew back, from some cause or other, with the exception of some enthusiastic young ladies, whom I could not possibly take, until at last I had to start alone. I cannot say, however, that I was quite abandoned, for on the morning of my departure for Genoa, a dear little girl of six, the child of some valued

friends, came to me with a small bundle. I had asked her repeatedly to accompany me, but she had always refused, saying, that she could not possibly leave her mamma. "Dear Dr. Bennet," she began, "I cannot bear to see you going to Sicily all alone, with no one to take care of you, so I have made up my mind to leave mamma, and to go with you; I have packed up my things and I am quite ready." It is singular at how early an age children show the characteristics that will stamp them throughout life. It is marvellous, also, what power a tiny child has to please and attach its seniors, or to repel them.

Although I at last departed alone, it was not without having many friends to see me off, and to wish me a prosperous journey. I am, indeed, struck every year by the great contrast that exists between the arrival and the departure of the winter visitors. This is more especially the case at the house that I inhabit, where there are nearly a hundred residents, most of whom are invalids and their friends settled down for "the winter." When the "poor exiles" arrive all is new and strange, and, generally speaking, there is no one to receive them but the host, or one of the waiters. But it is very different on their departure in spring, after a six months' sojourn. The isolation has ceased, for the house has become full of friends, with whom it is a kind of conscientious duty to see the traveller off. Then comes such a shaking of hands, such a waving of handkerchiefs, as makes the departure a complete ovation. Nor is this "well wishing" confined to friends new and old. The host and hostess and dependents seem to consider it a duty to take a part in the ceremony, and express their good wishes with a cordiality and familiarity strange to our cold northern ways.

Six months' confinement within the limits of even picturesque Mentone is an admirable preparation for such a journey as the one I was undertaking. Starting on a beautiful April morning—and April weather is always beautiful in this part of the world—once the regret of leaving friends has subsided, an exhilarating sense of freedom, of liberty, steals over the mind. To the invalid who departs from his winter retreat with restored or improved health, intense thankfulness is mingled with this feeling. Nearly always the air is warm and balmy, yet fresh and pleasant, the sun shines brightly in the clear blue sky, and the vegetation is that of July with us. As the carriage progresses, the eye glances involuntarily from the white clouds on the far off horizon, often hanging on the mountains of Corsica a hundred miles away, to the sparkling sea, to the now familiar forms of vegetation on the roadside, and to the olive-covered mountains which tower high above the shore.

The Riviera road winds in and out along the beach, at times ascending many hundred feet, at times descending to the sea-level. Ridges of rock, through which it passes, jut out into the waves, like mountain backbones or buttresses, showing at a glance the geological stratifications. Isolated rocks, some large, some small, rise out bodily from the sea, generally at the boundary or entrance of pretty bays, sometimes in their centre. When the road ascends a hundred feet above the shore level, the outline and shape of the pebbles and boulders at the bottom of the sea, near the beach, are seen with singular plainness. The eye, at that height, pierces the water and sees the stones at the bottom of the sea, as in one of Creswick's pictures of a trout or salmon stream. Picturesque grey villages and towns are constantly passed, generally consisting of one large narrow street along the shore. They are composed

of old, primitive, tall, quaint-looking houses, and their inhabitants form very artistic groups under the porches. A source of surprise to us meat-loving northerners is the absence of butchers' shops, for I only counted two between Mentone and Genoa. Nothing is seen exposed for sale in the eatable line, but bread, maccaroni, dried beans, chestnuts, wine and oil, evidently the staples of the country.

Genoa, the Superb, is seen many hours before it is reached, seated, amphitheatre wise, at the base of a mountain in the centre of its wide sea-like bay. As the traveller approaches, life becomes more active, the villages and towns are more numerous, as are the people who inhabit them. Great ships are building on the beach, on the very road, as it were, and inspire the passing traveller with wonder as to how they are to be got into the sea. Female figures become more and more numerous, looking very picturesque from their head dress. The Genoese women of the middle class wear on their heads a thin gossamer white or black scarf. It is fastened to the hair and comb, and hangs gracefully down on both sides. The women of the lower class wear, in the same style, gaudy, many-coloured cotton scarfs. Then we reach the busy suburbs of a great city, and in a few minutes more we are in the centre of one of the greatest commercial marts of the Mediterranean.

There is a steamer direct from Genoa to Palermo every Monday morning at eleven, which performs the voyage in forty-two hours; but as the day did not suit I was obliged to go by way of Naples. This, however, I did not regret, for it gave me the opportunity of paying another visit to Pompeii, which is always seen with renewed pleasure. Only one-third of the town of former days has been revealed, and as excavations are constantly going on,

every year there are fresh objects of interest to be seen. On this occasion I was shown a singular group of several figures just discovered, a woman, a man, and a girl, in the very act of flying from the shower of ashes, when they were overtaken and smothered. The moulds were found in a state of complete preservation, and owing to this circumstance the curators were enabled to make a plaster cast, which vividly brings to mind the actual event. Every muscular contortion, every detail of shape, is distinctly brought out in this vivid and ghastly group. I also saw a recently uncovered subterranean water channel, some four feet wide, and two deep, in which a considerable body of cool pellucid water is seen running rapidly to the sea. A few feet only of the roof had been taken off, and I looked down with interest on this stream of pure water, collected from the adjoining mountains more than eighteen centuries ago, for the use of the town, and which during all that period has been running unseen, hidden in the bosom of the earth, buried with the city it was intended to supply.

There is a steamer every other day from Naples to Palermo, and the sea being calm, and the barometer all right, I went on board, the 15th of April, at 6 P.M. I was the only Englishman on deck, so having nothing else to do I amused myself by watching my companions.

There were many Italians among the passengers, and many partings were taking place. I was interested and pleased to see how strong the affection tie evidently was between those departing and those left behind, and how utterly regardless all appeared to be of the rules which restrain the public manifestation of feeling in England. Grown-up people cried and kissed each other again and again, without the smallest effort at concealment.

One group more especially attracted my attention; a

young Neapolitan bride, with her husband and younger brother, as I afterwards learnt, were taking leave of the family of the former, on their departure for Palermo, where the bridegroom resided. There was a boat-load of the young lady's family, father and mother, and three or four sisters. Such sobbing and crying I never saw before. The poor mother and sisters were absolutely convulsed with grief, and could scarcely articulate for their sobs. The captain was positively obliged to have them removed from the vessel when we started, for they could not be persuaded to leave, and even then they kept waving their handkerchiefs from the boat, and breaking out into fresh paroxysms of grief as long as we could see them. The father was as weak as the lady members of his family. I found him, accidentally, in the steward's cabin, taking leave of his younger son, a big boy of fourteen, with sobs and tears and passionate embraces. No one on board seemed to think it at all strange; on the contrary, I heard on all sides kind Italian expressions of sympathy and interest. The bride cried as hard as the rest at the parting, but she soon wiped her eyes and smiled through her tears when her relatives were out of sight, seeming to find ample compensation in the loving looks and kind speeches of her young husband. So it is in most departures, those who are left behind are the most to be pitied. The new scenes and interests that surround those who depart, tend, if not to console them, at least to draw their thoughts into other channels.

The next morning I was up early, and on deck soon after six. Our course had been prosperous, and I was informed that we should be at our destination by ten. Already the mountains of Sicily were faintly visible on the horizon. The morning was lovely, the air pure and clear, and scarcely a wave on the sea, except those we made ourselves, as we

steadily ploughed our furrow in the briny deep. There were only sailors on deck, with the exception of a fat, burly, florid-faced man in a dirty white vest, sitting, with a look of great composure and self-satisfaction, by the side of the engines. In his hands were half a loaf of bread and a huge piece of meat, and with a clasp-knife he kept cutting off slice after slice, evidently much to his own gratification. I at once, by his appearance and occupation, recognised a countryman, and lost no time in making his acquaintance.

I found him very affable, and soon learnt his history. Like my friend of the *Virgilio*, he was the engineer of the steamer, and also a fair specimen of the philosophical roving Englishman. His idea of his duty to himself was to obtain as good pay with as easy a berth as he could, and in order to accomplish this he was prepared to go to any part of the habitable globe. Indeed, there were few regions of the world, he said, to which he had not been, and to which he was not perfectly ready to go, if he found it to his advantage. A few months previous, on returning from China, he had been offered this vessel, and at the same time a new steamer going out to run on the Spanish coast. The pay was the same in both cases, but he preferred the present vessel, an old one, because old engines, when good, work easily, and give no trouble, whereas new engines, for the first year or two, give a great deal of trouble. If they had offered him more pay he would have taken the new ship; but he was too old a hand to bother himself with new engines when he could get the same money for attending to old ones, that would work of themselves without any trouble. In uttering this sentiment he shut one eye, and gave me a knowing wink, as if mentally applauding his own judgment.

I expressed approval of his decision, and inquired if he

was comfortable on board, and was satisfied with his situation. "Perfectly," he answered; "the vessel and engines were good, although nothing to look at; and although he did not know much of their 'lingo,' he managed to make his stokers (Italians) understand him. But then," he added, "I don't let the captain interfere with me, my engine-room, or my men. He tried it on at first, but I soon showed him that it would not do. One of my men was lazy, so, on arriving at Naples, I made him pack up his things, called a boat, shoved him overboard, and told him to come back at his peril. I had to go ashore that morning, and on my return to the vessel I found that the captain had engaged another man as stoker. This I could not stand, for I consider that the captain has nothing whatever to do with the engine-room, where I am master, and I always engage my men myself. So I shoved this man off, like the other, and went myself to the owners of the ship to tell them what I had done. I found the captain at the office, and he flew into a towering rage when he heard that I had turned his man out of the ship. My reply was that I was master in the engine-room, and meant to remain so; that I was responsible for the men's work, and that I was consequently the proper one to choose them; that I would have no interference, and that if the power to choose and dismiss the stokers was not left with me, I would not put my foot in the vessel again. They fretted and fumed, but had to give way, for I was serious, and meant what I said; and ever since I have been master, and the captain does not try to interfere. You see, sir, I was right, and they all knew it. I am not going to have a set of lazy Italian louts about me; they must do their work properly, or go about their business."

I have reproduced this little incident because it illustrates, as does the history of the engineer of the *Virgilio*,

mentioned in a former chapter, some of the characteristic features of the Anglo-Saxon race. From the peer to the peasant we are all alike, all ready to go to any part of the habitable globe to better our social position, and we all show the same tendency to prefer the tangible to the ideal. In other words, as a race, we show a singular combination—a love for adventure and romance, and a keen appreciation of material advantage wherever it is to be found. Moreover, wherever we are we make ourselves happy and are contented, supported by an intense conviction of our superiority over all around us, and by a philosophical belief that it is our bounden duty to make ourselves as comfortable as is possible under the circumstances in which we are placed.

My new friend, having completed his breakfast, said he must go and look after his engines, and, descending the engine-room ladder, left me once more alone. By this time my fellow passengers had nearly all made their appearance, and were walking up and down the deck, in twos and threes, enjoying the pleasant fragrance of the early morn at sea. I was determined to bring my solitary condition to a close, so commenced looking around for "a future acquaintance."

Children and dogs are first-rate physiognomists. The former instinctively, as it were, find out who really like them, and do not hesitate to make the first advances. A lost dog will scan the features of those who pass him in the street, and having determined, in his inner mind, that he has found a benevolently inclined human being, will follow him pertinaciously to his home—an attention which I have always considered to be a great compliment, if paid to myself. When I am travelling alone I imitate both the children and the dogs. I scan the physiognomies of my fellow travellers, and when I have found one that is

"sympathetic" I make an advance, which I very seldom find repelled.

On the voyage from Genoa to Naples, I thus made a very agreeable acquaintance, that of an intellectual and refined gentleman, a coffee planter from Ceylon. His history quite corroborates what I have said of the go-ahead energy of the Anglo-Saxon race when speaking of my two engineer friends. Whilst at Oxford, a relation left him several coffee plantations in Ceylon. He at once threw aside his classics, Homer and Horace, and went off to Ceylon to take possession of the newly acquired property. Once there he threw all his energies into the fresh career, so little consonant with former studies and occupations, and had, consequently, been very successful. He had passed many years in his new home, and merely left six months previous, to spend a winter in England, on health grounds. In a few years more he expected to have acquired a sufficient fortune to return for good to England, but in the meanwhile Ceylon was his home, his field of battle, and to Ceylon he was returning. Most Frenchmen would have sold the estates for what they would have fetched, and would have gone on with their home career, but such is not the Anglo-Saxon impulse.

We became great friends, and passed a few days together very agreeably at Naples. I shall not easily forget the pleasure with which he looked at a young oak in leaf at Capri. He had not, he said, seen an oak leaf for many years, for the oaks had lost their foliage when he reached England in the autumn. He left it to me to decide whether he should accompany me to Sicily, or go on to Rome. Having only ten days to spare, he could not do both, and I take great credit to myself for having sacrificed my own wishes to what I considered his advantage, in advising him to prefer the "eternal city." Thus it was that I was "alone" on the voyage to Palermo.

On this occasion four Germans, evidently travelling together, found favour in my eyes, and I at once broke the ice by a few trivial remarks on the weather, and on our favourable progress. I found them very pleasant, amiable people, and we soon became quite friendly. One was professor of history in a German university, and a few words about the Grecian antiquities of Sicily, about the Phœnicians, the predecessors of the Greeks, and their successors the Romans, Saracens, and Normans, were to his ears like the blast of a trumpet to a war-horse, rousing all his historical sympathies. Was he not going to Sicily with two of his student friends on purpose to study these very antiquities! The fourth was a young German Baron, very high and mighty, with a large carpet-bag quite covered with crowns and recondite armorial bearings. His father was a great man in Germany, the owner of a dozen estates, with innumerable quarterings of nobility, and the son was treated with much respect by his companions. The social state of Sicily, and that of its landed aristocracy, still rich and locally powerful, had as great a charm for him as had history and antiquity for the learned professor. Companions and friends thus secured, for the present at least, I was able to give my undivided attention to the fair island we were now fast approaching.

At a distance Sicily appeared to rise from the sea as a chain of low mountains, extending from west to east, but on a nearer approach the mountain chain gained in apparent elevation, and a wide bay, that of Palermo, opened out as we approached the land from the north-east. In the background of the bay a magnificent amphitheatre rises majestically. This amphitheatre is twenty-nine miles in circumference, and is limited by a bold range of limestone mountains which encircle it down to the sea, forming, by their last spurs or projections, Mount Pellegrino on the

west, and Mount Catalfano on the east, the arms or limits of the bay itself.

The first mountain barrier that forms the amphitheatre is about three thousand feet high, but successive ridges rise above each other towards the south, until a height of six thousand feet is attained. It is to the fertile plain, encircled by this noble amphitheatre of mountains, that has been given, from time immemorial, the name of *Conca d'oro*, or the Golden Shell. The width of the bay itself, from Mount Pellegrino to Mount Catalfano, is eight miles; following the course of the bay it is twelve miles.

The town of Palermo, lat. 38° 6′, population 187,000, is situated on the shore of the bay, at the junction of the western third with the eastern two-thirds. It is built on each side of a long and fine street, the Via Toledo, which, beginning at the marina or beach, ascends gently inland towards the mountains, so that the city forms a parallelogram, and is long and narrow as compared with its width. The port, which used to be much larger and deeper in former days, runs quite into the town. As it is too shallow now for large vessels, the latter anchor inside a mole or jetty, built outside the old port.

The view of Palermo as we approached, on a clear, fresh sunny spring morning, was really very beautiful. The grand range of mountains in the background, reaching the sea on each side of the bay, and all but encircling the vast and fertile plain, the large white city, with its numerous cathedrals and churches, shining in the southern sun, the wide tree-planted esplanade or marina, the deep blue water of the sea, all combined to create a scene of loveliness and grandeur not easily forgotten.

Nor was the favourable impression destroyed or weakened on landing. The shore, which is laid out as a promenade

and drive, and planted with fine trees, just coming into leaf when we arrived, is bordered by handsome houses, among which is the famed Trinacria Hotel, one of the best in Italy. Ragusa, the landlord, lived long, in early days, with English noblemen, and knows the wants and requirements of our countrymen, which he does his best to meet and supply. The rooms are clean and well furnished, and nearly all have a fine view of the sea and bay.

Once comfortably installed, my first thought was for the state of the vegetation. The principal motive of my visit to Sicily being to study the winter climate as demonstrated by the vegetable world, I was anxious not to lose a day in commencing the survey. I therefore hired a carriage, and drove at once to the Botanic Gardens. After viewing it carefully I devoted the rest of the day, as also part of each day that I remained, to the study of the meteorological position, and of the vegetable productions of the plain that surrounds Palermo.

My intention being to compare the vegetation of the Riviera with that of Sicily at the same epoch of the year, I had carefully analysed it at Mentone and along the Riviera, when I left the one and passed through the other, on the 11th of April. I had also travelled rapidly in order that only a few days might elapse between the date of my departure and that of my arrival in Sicily, where I landed on the 17th.

The geological character of the soil is the same, calcareous in both regions. The great difference is that the Riviera is protected from the north by mountains, over which come dry, cold winds, and is open to the southern sun, and to the south winds after they have crossed the Mediterranean—whereas Palermo is exposed, without any protection whatever, to the north, north-east, and north-west winds, which must pass over the Mediterranean to

reach it; the amphitheatre formed by the barrier of mountains opening out towards the north.

The result of this investigation was the conviction that the more southern latitude of Palermo, without mountain protection from the north, gives to it as warm a winter climate as the Riviera enjoys with protection from the north, but not a warmer one. The two regions seem to be singularly identical, considering the distance that separates them, as regards the character of their vegetation and its development, but their climates are very different in other respects. The situation of Palermo, in the southern part of the Mediterranean, and on the north shore of Sicily, gives it necessarily a moist winter climate instead of a dry one, like that of the Riviera. I will now explain the data on which these views are founded. Palermo being one of the most renowned health climates of the south of Europe, every feature connected with it offers great interest.

In the open plain south of the town, with a thoroughly northern exposure, but sheltered to a certain extent by the city itself, I found (April 17th) the same evergreen tree vegetation as in the more sheltered regions of the Riviera—large Lemon, Orange, and Carouba trees growing freely and luxuriantly as timber trees. It was quite evident that in descending south I had reached a region where latitude alone gave the immunity from frost that on the Riviera is secured merely by sun exposure and exceptional shelter from the north, an immunity necessary to the well-being of these trees. Still, even here, the Lemon and Orange groves occupied principally the more sun-exposed and sheltered points of the plain at the foot of the mountains, and were all but invariably surrounded by high walls. These walls were destined, evidently, not only to protect the fruit and trees from spoliation, but also to shield them from the north or sea winds.

The deciduous trees were still behindhand, indeed scarcely as far advanced as I had left them on the Riviera six days previous. The hawthorn had not blossomed, and the Fig, Mulberry, and Plane trees were only just beginning to show their leaves. Many deciduous trees peculiar to the south were totally devoid of leaves.

The Botanical Garden is only a hundred yards from the shore, on the east side of the city, and although it has no other protection from the north and from the sea breeze, than that afforded by a five feet wall, the spring flower vegetation was in exactly the same state of advancement that I had left it in the most sheltered nooks of the Riviera, such as Monaco, Mentone, San Remo, and Alassio. At the same time these flowers were certainly neither more advanced nor more numerous.

Thus, I found in it, as also in the fine garden of the Princess Butera, and in several others which I visited, the following flowers in full bloom: Salvia, Iris, Rose (white, red, and China), Wallflower, Anemone, Petunia, Verbena, Mignonette, Sunflower, Gladiolus, Spiræa, Nasturtium, Poppy, Marigold, Geranium, Candytuft, Hollyhock (three feet high, but not in blossom), Stock, Carnation, Tulip, Peony, Auricula, Cyclamen, Eschscholtzia, Banksian rose, Judas tree, Chestnut tree, Elder tree, Hawthorn (about to blossom), Alyssum, shrubby Euphorbias, yellow Jasmine, Nettles, and Asphodel. All these flowers, shrubs, and trees I had left equally advanced and flourishing six days previously on the Riviera.

Peaches were set as large as small walnuts, Strawberries were served in profusion at every meal at the hotel. Oranges were numerous and first-rate, sweet and juicy. I may here mention that throughout Sicily it is the custom to eat strawberries along with sugar and the juice of an orange or two. The strawberries, a small kind, come

to table without their stalks, are crushed with white pounded sugar, and the juice of an orange is squeezed over them. The result is a most fragrant and agreeable compound, much superior, in my opinion, to strawberries and cream. Indeed, I think it is all but worth while to make a journey to Sicily to be initiated into this mode of eating strawberries.

The flowers above named are those that bloom in our climate between April and the early part of July. Some, the early kinds, such as Anemones, were going off; others, and principally our June flowers, were in full luxuriance. This advanced condition of spring and early summer flower vegetation, and the rather late or retarded state of the deciduous tree vegetation, indicate the warm days and rather cold nights, without absolute frost, that characterize, in winter, the protected regions of the south of Europe. The sun is ardent, and warms the surface of the soil, but the nights are cool, not to say cold, and the sun-heat does not penetrate deep enough into the earth to reach the roots of the trees until the spring is far advanced.

The Botanical Garden itself, at Palermo, although interesting, is in rather a neglected state, and shows the want of energetic modern direction. The plants are still classified according to the Linnæan system, as at the beginning of this century. All the trees, shrubs, and plants in the ground are unlabelled, and part only of those in pots are so honoured. Many of the labels themselves are illegible from rust and time. Indeed, the garden struck me as being in a great measure left to common gardeners, and wanting the direction of a scientific modern botanist.

On surveying narrowly the shore and the sides of the mountains, I was struck by the absence of the scarred, water-worn ravines which are seen at every mile along the Riviera, and along the sides and at the foot of the Apen-

nines, and which are the graphic evidence of the tropical rains of these regions. Moreover, the sides of the western sun-exposed mountains were clothed with verdure from their base to their summit, more like the basaltic hills of the west coast of Scotland than the sun-burnt, naked summits of the Riviera mountains, the geological formation being in both cases the same, calcareous.

To my now rather experienced eye the verdure of the mountain sides, and the absence of water-worn ravines, indicate a moister climate than that of the Riviera, and betoken rain falling oftener and less abruptly. On inquiry from Dr. Moscuzza, one of the leading physicians of Palermo, and a very enlightened, experienced man, and on consulting Professor Scina's valuable work on the meteorology and climate of Palermo ("La Topografia di Palermo e de' suoi Contorni, 1818") which Dr. Moscuzza gave me, I found that such is really the case, that the winter climate of Palermo is mild, but damp and moist.

At Palermo, according to Professor Scina, there are 131 days in which rain falls, and these rainy days are principally in the winter. At Malaga there are only 40, at Nice 60, at Mentone 80, and even in London only 145. Yet only 21 inches of rain fall at Palermo, which is about the average of London; that of Nice being 25, that of Algiers 45. These facts prove that the rain must be more continued, more mizzling, more like that of the northern regions of Europe, than is the case on the north shore of the Mediterranean.

The paucity of the rainfall at Palermo as compared with the Algerine shore of the Mediterranean, and the moist character of its winter climate, are explained by its geographical position. The north-east and north-west winds, which principally reign in winter, have had their moisture precipitated before they reach the Mediterranean

by the snow-covered mountains of the south of Europe—of Italy, of Corsica, Sardinia, and Spain. The moisture which they contain when they reach Sicily is merely what they have picked up on their subsequent passage over a limited portion of the Mediterranean. Again, the first ridge of the mountains which form the Palermo amphitheatre not being very high, nor their temperature very low, owing to the latitude, a portion only of this moisture is condensed and gently precipitated. As the northern winds, which bring these mild rains, have crossed in winter, as we have seen, the snow-clad summits of the Apennines, Alps, and Pyrenees, and of the mountain ridges of Spain, of Corsica, and of Sardinia, they would be much colder were they not warmed by passing over several hundred miles of a warm sea.

The above facts clearly point out the character of the winter climate of Palermo. It cannot be very cold—indeed it can scarcely ever freeze, as the lemon-tree thrives, becoming a large tree, in the open air, and a few degrees of frost kill it. The nights, however, being cool from December to April, and the sun-heat being considerable, the daily transition of temperature must be marked, as on the Riviera. But instead of being dry and bracing, as is the climate of the north Mediterranean coast, the climate of Palermo must be rather moist and relaxing. On referring to Professor Scina's work, I find these deductions thoroughly carried out by the data he advances.

The mean winter temperature of Palermo, like that of Naples, is higher by some degrees than that of the Riviera; but I presume that in both localities this fact is partly owing to greater day heat, and partly to the occasional prevalence of the sirocco, or south-east wind from the African desert. It always greatly raises the temperature while it lasts, and is a source of much discomfort and

distress to the entire community, to the sound as well as to the unsound. Indeed, the increasing heat and the more pernicious character of this African wind, as we go south, in the western regions of the Mediterranean, to a certain extent counterbalance the advantages gained in other respects.

Such a winter climate—temperate, sunny, and rather moist—may be beneficial to a certain class of patients, to highly nervous, excitable, impressionable constitutions, that are too much braced and stimulated by the dry tonic atmosphere of the Riviera, and with whom the bracing, stimulating atmosphere of Cannes, Nice, Mentone, or of the east coast of Spain does not agree. But I do not think it possibly can be as beneficial to those who require invigorating and vitalizing, to those who are suffering, like the phthisical, from defective nutrition and lowered vitality. In the earlier and curable stages of phthisis I am persuaded that the dry invigorating climate of the Riviera, or of eastern Spain, is far preferable in the great majority of cases.

I should, however, be inclined to advise a trial of the climate of Palermo, in preference to the north or east coast of the Mediterranean, in severe cases of spasmodic intermittent neuralgia, in spasmodic idiopathic asthma, and in cases of phthisis accompanied by much nervous irritability, or by a constant tendency to hæmorrhage. These are the forms of disease that do not appear to do well with us on the Riviera; and if the cause is the dry, and to them the exciting, character of the climate, it stands to reason that an equally mild and a more moist atmosphere may prove to be what they require. The winter climate of Palermo appears to hold a medium position between that of Pau and that of Madeira. It is much warmer than Pau, and much colder than Madeira—at least, the nights are much colder.

From what precedes, it is evident that the climate of Palermo cannot take the place of that of the Riviera, and that it is not as suited to the common run of consumptive cases. At the same time it is equally clear that there are some forms of disease in which it is specially indicated and in which it may be of great use, and that more especially when the Riviera fails to afford relief.

Palermo is by far the largest and the most interesting city in Sicily. The beauty of the amphitheatre in which it is situated, and the shelter afforded by its port, larger and better in olden times than now, have always made it an important and favourite city. When the Greeks, the Carthaginians, and the Romans successively occupied Sicily, Palermo, however, did not enjoy the same amount of prosperity that it subsequently attained during the reign of the Saracens, and of the Norman kings, and, later still, under the Spanish and Neapolitan kings and viceroys. It was the capital of Sicily during the sway of these successive dynasties, and is replete with the vestiges of their dominion. The older churches and palaces—indeed, nearly all the remains of antiquity—date from Saracenic and Norman periods. Many of them are very interesting specimens of the Norman architecture of that day, modified by contact with the Saracenic, Byzantine, and Greek styles, which were in the ascendant when the Normans conquered Sicily. The magnificent cathedral of Monreale is the finest example extant of this blended, or Siculo-Norman style of architecture, as it has been called.

Sicily, the largest and most fertile island in the Mediterranean, has, like Corsica, been the prey, the battle-field, of the various powers that have reigned in the Mediterranean during historic times. But unlike Corsica, although mountainous, it had no primeval forests, no inaccessible snow-clad mountains, in which its population could take

refuge when sorely pressed, and perhaps not such a warlike population, so that it was always eventually conquered. The Greeks colonized it seven centuries before Christ, and built many splendid towns on its southern and eastern shores, those nearest to Greece. It is on these shores, at Syracuse, Agrigentum, Selinus, Segesta, and elsewhere, that are to be seen to this day remains of Grecian temples as numerous and almost as splendid as those to be found in Greece proper. These prosperous communities excited the envy and cupidity of the Carthaginians, the site of whose empire, on the opposite African coast, was too near for their safety. They were attacked and conquered, but their conquerors soon fell before the Romans in the Punic wars, and Sicily remained long a part of the Roman empire. After the fall of Rome Sicily became subject, successively, to the Vandals, to the Byzantines, and to the Saracens; always falling into the hands of the strongest. The Normans at the time of the Crusades drove the Saracens out of the island and established the Norman dynasty. Then comes an interminable array of kings and viceroys belonging to the imperial house of Germany, to the houses of Anjou, of Aragon, of Savoy, of Austria, of Spain, of Naples, ending in *Italia Unita*, united Italy, under the "Re galantuomo," Victor Emmanuel, with a more glorious prospect for the future than ever.

Poor Sicily! The list of its conquerors and governors is perfectly oppressive to the imagination. It must indeed be a beautiful and fertile country to have been worth so much contention in past times. In the days of imperial Rome it was often called the granary of the empire, and is still one of the most fertile and most favoured spots in the Mediterranean. Under good government it will, no doubt, in the course of time, arrive at a state of prosperity

of which its present inhabitants have no conception. It has within itself all the elements of fertility which made it rich and populous in the days of Greece and Rome—a mild, beautiful climate, a fertile soil, a splendid position.

The town of Palermo is very regularly built; the streets are wider, handsomer, and cleaner than those of any town that I have visited in the south of Europe. In addition to the Via Toledo, which passes through the centre from north to south, dividing the city into two parts, there is another street, equally fine, the "Strada-nuova," which passes through it at right angles to the former, from west to east. These two large streets add greatly to the beauty of Palermo, and make it easy to find one's way anywhere. There is a Moorish character about the architecture even of the private houses that gives a great charm to the place; many of the shops are very good.

The Via Toledo is continued by a road which, emerging from the southern extremity of the town, gently ascends the plain for four miles, when it reaches the suburban town of Monreale, celebrated for its beautiful Siculo-Norman cathedral, and often the suburban residence of the Norman kings, and of the Spanish viceroys. Monreale being nearly two thousand feet above the level of the sea, is cooler than Palermo in summer. The views too, on all sides, are very beautiful. This road, and those along the shore towards Monte Pellegrino and Monte Catalfano, are the favourite drives of the Palermitans.

The road to Monreale is peculiarly picturesque, owing to the magnificent scenery of the mountain amphitheatre, which becomes more and more beautiful as we recede from the sea, and owing to the extreme luxuriance of the gently rising plain on each side. It is the same vegetation that we see at Mentone, and in the more sheltered parts of the Riviera, but spread out in a wide garden plain, instead of

occupying a seaside ledge under high mountains. Forests of Lemon and Orange trees, interspersed with large stately Caroubas and old Olive trees, and groves of Aloes and Prickly-pears, are traversed. The ground, too, when I saw it, was one carpet of wild flowers.

The town of Monreale is of considerable size (population 15,000). It has grouped itself round the grand cathedral, built by one of the early Norman kings in the year 1182. The Normans found Saracenic, Roman, and Greek workmen and architects in Sicily, and the churches and palaces they built exemplify a singular but very beautiful mixture of all these styles of architecture. They borrowed a peculiar form of pointed arch, with profuse ornamentation, from the Saracens and Moors, apses from the Romans, mouldings with ornamented capitals from the Greeks, and mosaics from the Byzantines. And yet it is from this mixture of so many forms of architecture that issued the very beautiful style, so peculiarly their own, to which the term Siculo-Norman is given. The mosaics are peculiarly rich in the Monreale cathedral; they cover more than 80,000 square feet.

There is a Benedictine monastery adjoining the cathedral, founded at the same epoch, which contains some valuable and interesting pictures, and a mosaic ornamented cloister, well worth visiting. Connected with it is a seminary for the education of young priests. The great Sicilian families still, as in former days, send their younger sons and their daughters to convents, in order to accumulate the property in the hands of the head of the house; it is the easiest and cheapest mode of providing for them. In the garden of the monastery I saw many fine-looking boys, from ten to sixteen, in the priest's gown. They were priests in embryo, not through their own will, or from religious vocation, but by their parents' decree. I

could not help pitying the poor boys, thus condemned in childhood to a life which later might possibly prove a bitter penance. There are also many convents for women both at Palermo and Monreale, cages for poor fluttering human birds. If a sincere religious vocation drives a man or a woman in the maturity of their intellect to a cloister, it may be respected; but it is very odious to thus imprison and bind for life mere children.

Although there are roads in the interior of the island, there are so few travellers that it is not thought worth while to prepare for them, so the inns are mere wine-shops for the muleteers, very miserable and dirty, without resources. The plan, therefore, for travellers who wish to visit the antiquities, and the interior and southern coast of the island, is to charter a vetturino carriage, and to stock it with eatables, as a yacht would be stocked for a cruise. Being most desirous to see all there was to be seen in Sicily, I and my German friends, who proved very agreeable companions, agreed to travel together, and with the assistance of our host made all the necessary preparations. As a preliminary precaution, I called on the English consul, who is also the banker, to exchange gold for a letter of credit, but from him I received the urgent advice not to venture into the interior. He told me that a few weeks before a numerous band of convicts had escaped from the pontoons at Girgenti, and taken refuge in the very mountains that were on our path. If we started, we ran a very fair chance of being taken possession of and detained for a ransom.

As I have arrived at an age when, generally speaking, "discretion tempers valour," much to my regret I gave up the intended excursion, as did the German Baron. The professor and his pupils, however, were much too enthusiastic to be arrested by such trifles, and started

alone. As for us, with the mental resolve to return at some more peaceable time, we took our places on board the French Alexandria steamer for Messina. She came in that evening direct from Marseilles and proved a splendid boat. We slept well on board, and the next morning, when we awoke and got on deck, found ourselves steaming into the port of Messina.

The view of Messina, of the straits, and of the adjoining mountains, on entering from the Tyrrhenian sea, is perfectly enchanting, and so different from anything seen before that it rivets all the faculties. On a calm, fine morning, such as we were favoured with, the straits, being only a few miles across, look like an inland lake. On the right is a large handsome town, occupying a semicircle at the foot of high and tree-clad hills; on the left, or east, rise abruptly from the sea a series of magnificent mountain ridges, which rapidly attain an elevation of seven thousand feet. Their rocky flanks, which present little perceptible vegetation, all but glisten in the brilliant sunshine, whilst their summits are covered with sheets of snow (April 25). Here and there, clinging as it were to the side of the mountain, are numerous villages and towns, with their tall churches and campanili, telling of hidden fertile valleys, and of terrace cultivation, imperceptible at a distance. To the south, above all, towers the snow-covered summit of Mount Etna, although fifty miles distant.

The port of Messina, probably the best in the Mediterranean, is one of the wonders of that sea. It is a vast abyss or chasm, produced by an earthquake, or volcano, four hundred and twenty feet deep at the entrance, filled by the sea, and all but closed towards the straits by a narrow sickle-like promontory. Indeed the port is so sheltered that most of the numerous vessels it contains lie quietly,

merely moored to the quays, without anchoring, which they could scarcely do in such deep waters. So thoroughly does the promontory which all but encircles the port towards the sea answer to the form of the reaper's hook, one of the oldest agricultural implements, that the ancient name of Messina was *Zancle*, which means sickle in the primitive Sicilian language.

Messina was one of the earliest of the colonies founded by the Greeks in Sicily, and in successive ages followed the fortunes of the island in all their varied phases. The importance of the situation of Messina at the entrance of the straits which, in all historic times, have been the high road between the east and the west of the Mediterranean, and the great security offered by its port, have been permanent sources of disaster as well as of prosperity. It has nearly always been the first town attacked and besieged, and often the last retained by the different nations that have conquered Sicily.

In addition to sieges without number, Messina has also had to withstand the assaults of nature's mysterious agencies; for it has been repeatedly all but destroyed by earthquakes. Lying on the line between Vesuvius and Etna, it has ever been, and must remain, liable to these terrestrial convulsions. The two volcanoes are no doubt connected subterraneously, and are the result of the same agencies, a fact long recognised by geologists. The activity of the one has generally coincided with the quiescence of the other, and *vice versâ*. For more than a thousand years after the destruction of Pompeii, Vesuvius remained quiet, and during that time Etna was active; now when Vesuvius is active, Etna generally remains all but quiescent, and *vice versâ*. When both are quiescent there is danger, and then woe betide the towns that, like Messina and Catania, are living on or near the volcano. The last

serious earthquake that occurred was in 1783; it destroyed the greater part of the town, and many thousands of its inhabitants.

The combined influence of these two causes of devastation, war and earthquakes, has made Messina a modern city. It has been so often all but destroyed, all but razed to the earth by the one or the other, that it has very few antiquities; most of the buildings are modern, or comparatively modern. Facing the sea, on the western side of the port, there is a row of fine stone-built houses, a mile and a half in length, forming a wide crescent, which adds greatly to the beauty of Messina. These houses, at a distance, look like one long and handsome palace. Eighteen streets pass through wide arcades in the basement of the houses on to the marina or port, without breaking its symmetry, or, rather, its solidarity.

To the north of the town a low neck of land, a kind of sandy promontory, advances into the sea towards the mainland, until it reaches within two miles of the latter, and thus forms the north-eastern or Sicilian entrance to the straits. This is the well-known Cape Pelorus of the ancients. At its point is a village named Faro, from the Greek Pharos, lighthouse, and a tower, the Torre di Faro. This tower long served both as a fort and as a lighthouse, but now is only used in the latter capacity. The ancients believed that Sicily was formerly a part of Italy, and was torn from it by a convulsion of nature, as shown by the verses from Virgil's "Æneid," at the head of this chapter. Modern geologists do not accept this view.

The road from Messina to Faro skirts the shore, and is very fertile and pretty, passing as it does through groves of olive and orange trees, with frequent glimpses of the blue sea, and of the grand Calabrian mountains. The distance from Messina is about eight miles, and this

drive is not only the pleasantest, but the most fashionable.

The distance from the Faro tower to the mainland is so short that on a calm night the crowing of the cocks and the barking of the dogs on the Calabrian coast is distinctly heard. It is stated in history that it was the Messinians who first summoned Count Roger de Hauteville, the Norman Baron, to defend them against the Saracens, and that he and his followers crossed the straits in boats (1072), swimming their horses by their side. In recent times, Garibaldi crossed from Sicily to the mainland with the remains of his "one thousand" in boats, and it was on the mountain of Aspromonte opposite that he was wounded and taken by the royal troops.

It is in these straits that are situated the famed whirlpools of Charybdis, so dreaded by the ancients, and the horrible rock of Scylla, with its summit in the clouds, amid eternal tempests, inaccessible to man, and its base deep in the sea among ravenous sea monsters. Admiral Smyth, who surveyed this region, finds very little foundation for those poetical fancies of Homer, and of subsequent classical writers. They certainly were not the greatest dangers poor Ulysses had to encounter in his wanderings.

The rock of Scylla, says the Admiral, is merely a water-worn rock, like any other, on the Calabrian coast, opposite Faro, surmounted by an old castle. The whirlpool of Charybdis, by the Sicilians called "garofalo," exists near the entrance of the Messina harbour, but in such a form as to be only dangerous to small craft in the hands of inexperienced mariners. To the undecked vessels of the Rhegians, Zanclians, and Greeks, it may have been formidable, for Admiral Smyth has seen a man-of-war whirled round on its surface. It is, apparently, the result of a conflict between a harbour current with

the main or tidal currents which set up and down the straits.

What are much more dangerous to the small vessels that navigate these regions, are the sudden gusts of wind that often come down the *fiumare*, or dry torrent beds of the adjoining mountains, with all but irresistible impetuosity, and capsize vessels unprepared for them. Admiral Smyth says, that he saw thus overtaken and capsized a fine barge, with eighteen first-rate sailors and an experienced officer, who all perished. The barge, which had been on duty with the Sicilian flotilla for years, had been taking a German Princess on board a vessel bound to Palermo. On its return it was seized by so sudden a squall that they could not lower the mainsail, and she instantly capsized. The bodies were picked up the next day, thirty miles to the south, near Taormina. In Messina, there has been found a Greek inscription to the memory of thirty-seven youths of Cyprus, who lost their lives in the Faro by a similar disaster. The inscription says, that as many statues, sculptured by Calion, were erected to their memory. Thus were the fine arts honoured and supported by the ancient Greeks, and made subservient to the affections; but in our day, we perhaps do better. We do not raise statues to the memory of youths who are accidentally drowned, but we not unfrequently think of and look after their mothers and wives.

Messina is the great central rendezvous of the steamers that navigate the western waters of the Mediterranean, and a very flourishing city. It is the principal commercial port of Sicily, the main outlet for the north-eastern part of the island, and exports immense quantities of oranges and lemons, and a considerable amount of corn, silk, sulphur, and wine. Although a very beautifully

situated commercial emporium, it did not, however, strike me as ever likely to become a winter sanitarium.

The Calabrian mountains rapidly recede to the south-east, so that half-a-dozen miles below Messina the straits are already twelve miles across. Thus Messina receives the south-east sun in full, and is protected by mountains from the north-west. But then, immediately in front, to the east and north-east, there are the high snow-covered Calabrian mountains. In winter the north-east winds must be very cold, and there must constantly be a cold down-draught at night.

The city of Messina, and its northern and western suburbs, show this influence; there is all but a complete absence of the southern vegetation of Palermo. The hills are covered with Fir and small Olive trees, and the Orange and Lemon trees disappear, or are only observed in sheltered corners. The Fig trees were only beginning to show their leaves, the Vines were merely sprouting, and there were very few flowers in bloom to be seen. Indeed, the proximity of the cold Calabrian mountains appeared to have brought the northern suburbs and the city of Messina, which are in the same latitude as Palermo, nearly to the level of Marseilles.

The mountains, at the foot of which Messina is situated, are part of a huge sedimentary or Neptunian chain that runs right through the island from east to west, along the north coast. These mountains, of calcareous formation, extend southwards along the east coast for thirty miles, as far as Taormina, just as the Maritime Alps run along the Riviera or Genoa coast, having also a sheltered under-cliff, smiling and luxuriant. The coast itself dips to the south-west, as will be seen by looking at the map of Sicily. On the other side of the straits the Calabrian mountains rapidly lose their great altitude, and expire at

the end of the Italian mainland, some fifteen miles below Messina.

Owing to the above physical condition, a decided undercliff or Riviera commences at the south suburbs of Messina, protected from the north and north-west by the coast chain, and gradually less and less exposed to the north-east as it descends southwards. Under these influences of protection, and of exposure to the south-east sun, a wonderful change takes place. Nature bursts into extreme southern luxuriance; not so much on the advanced or more exposed headlands, which still catch the north-east wind, as in the intervening bays or sheltered ravines. Here vegetation at once assumes a very advanced southern character. Stately Orange trees, sometimes as large as moderate-sized Oaks, and Lemon trees overtopping two-storied houses become the rule. I saw Oleander trees thirty feet high; the white Mulberry and the Almond trees were in full leaf, and the latter had fruit full size, evidently stoning; Fig trees were in leaf, and the fruit large; the Vines had made shoots four or five feet long. What is called the black Mulberry tree was still all but leafless, as at Palermo, only a few buds and terminal leaves appearing. Few if any cultivated flowers were to be seen, with the exception of Carnations in full bloom in pots or vases on the balconies which most houses of any pretensions possess. Wild flowers were numerous in the orchards and fields, and prominent among them the Gladiolus, which was growing in great profusion. Barley and Oats were in the ear, and Wheat was some two feet high; indeed, spring vegetation was certainly more advanced than I had seen it in any other part of Sicily. The name given to a village in the more southern portion of this region, *Giardini* (gardens), implies the recognition in former days, as well as now, of exceptional fertility. The physical conditions are the same as

those of the Genoa Riviera, but this undercliff is five degrees further south, and no doubt enjoys a still warmer summer climate. Were Messina or Catania situated in this region they would truly be exceptionally favourable winter stations, but unfortunately they are not sheltered from the north-east.

In the midst of this exuberant fertility there is a numerous population, which appeared very poor, squalid, and badly fed. The inhabitants live in large, dirty, decayed villages, in which it would be all but impossible to make even a temporary settlement; although everywhere the scenery is glorious—rocks, torrents, beautiful bays and promontories. The men are better looking than the women, who seem to have even the beauty of youth ground out of them by work, insufficient food, and exposure to the sun. The latter wear no covering on their heads, except occasionally a handkerchief thrown over the back part. To screen the eyes from the ardent sun, therefore, they contract a habit of frowning, which impresses premature wrinkles on the youngest brow. Thus the girl of fifteen appears twenty, the woman of twenty, thirty, the one of thirty, fifty, and the one of fifty, a hundred.

About thirty miles from Messina the mountain chain leaves the coast and takes an inland or westerly direction, skirting for some distance the northern foot of the Etna. Although the undercliff ceases with the town of Taormina and the village of Giardini, its protection, and that of the mountains trending west, are still felt, and a region of exuberant fertility meets the traveller for some miles further on to the south.

The town of Taormina contains numerous antiquities which are well deserving of examination. The most interesting is the remains of a Greco-Roman theatre, the largest in Sicily, and one of the best preserved in Europe.

It was made to contain forty thousand persons in the time when Taormina was a great city, four miles in circumference. The ancient Taurominium was founded 358 B.C., by the scattered descendants of the inhabitants of the neighbouring city of Naxos, razed, and totally destroyed. by Dionysius of Syracuse, 403 B.C. The Naxians had incurred the animosity of the tyrant of Syracuse by allying themselves to Athens in her wars with that city, and by giving winter quarters to the Athenian general Nicias previous to his siege of Syracuse 415-414 B.C.

Naxos was the first colony made by the Greeks in Sicily, 735 B.C., and was founded one year before Syracuse. It was built on the promontory called Capo Schiso, a few miles beyond Giardini, on an ancient lava stream. No trace of it now remains.

Beyond Giardini begins the domain of the king of European volcanoes, Mount Etna. No better view of Mount Etna can be obtained than from this part of the road from Messina to Catania. For thirty miles it skirts the eastern or sea base, the entire circumference of the base of Mount Etna being 120 miles. Thus does the traveller become gradually impressed with the real grandeur of this magnificent mountain. At first it is difficult to believe that it is nearly 11,000 feet high. The rise to the plain at the summit, from which issues the final cone, is so gradual, and the summit plain itself extends over such an extensive area—many miles from north to south—that the great volcano looks more like a snow-covered ridge than a single mountain. The snow at this time of the year covers at least the upper third of the huge mountain—a vast superficies.

From this moment the scene changes. The soil is merely decomposed lava, a mixture of large masses like scoriæ or slag from a manufactory, of smaller pieces like

cinders, and of a brownish black earth like ashes. The more ancient currents of lava seem to be gradually resolved into these elements. When cultivation commences, the large masses are dug up and piled for walls, the small ones are used to Macadamize the roads, and the ash-like remains constitute the soil; and very fertile soil it appears to be, merely requiring water to produce anything that is sown.

The southern character of the vegetation recedes under the cooling influence of the vast snow-covered plains of Mount Etna. The Fig trees have only terminal leaves, and the fruit is very small; the white Mulberry trees and Vines have also only a few leaves; the black Mulberry trees are mere sticks, scarcely having their buds formed. Lemon and Orange trees still appear, but only in sheltered valleys and depressions, and are often protected by high walls; neither are they as large, as vigorous, as tree-like. The Olive tree, however, holds his own, as also do the Opuntiæ or Barbary figs. The latter are extensively cultivated throughout Sicily as hedges, and for the sake of their fruit. They grow to the height of some twelve or fifteen feet, in a very singular grotesque manner, and assert their claim to being dicotyledonous plants by becoming regular trees, with a large round trunk and bark. This transformation of the flat, fleshy, leaf-shaped branches is quite remarkable.

The geologically celebrated Val di Bove, with its dykes, is seen at a distance, a wide and long chasm on the flanks of the mountain; also the Oak and Chestnut forests below the snow line, which appear as mere black patches. As we approach Catania the very peculiar grim, coal-mouth character of the region becomes more and more apparent. The walls on the roadside, and in the fields and the outhouses, are all made of clinkers, the road of cinders, the

soil of ashes. Vineyards are numerous; the Vines—indeed, nearly all plants in Sicily—are planted in the fields between ridges or pyramids of the loose black soil, some eighteen inches high, in order to retain moisture. Even wheat is planted in this way in tufts at the bottom of furrows, and between ridges. In flower gardens the same system is followed.

This soil, formed of decomposed lava, appears to contain all the elements of nutrition required for vegetation: everything seeming to flourish and thrive in it, provided there be water. The ground vegetation shows less difference than that of the trees. Beans and Peas are ripe, and Vetches are in full blossom. Lupines, white and blue, are very abundant, and are extensively cultivated as fodder for cattle. The Hellebore is in flower and very common; Almond trees are in full leaf, and the fruit natural size; white and red Convolvulus and scarlet Poppies are common. Occasionally, near water, are Poplars in full leaf; in the same situations, Cannas have new shoots, three or four feet long. They grow to twenty feet or more, and are much used for light fencing, as supports to Vines, and for a variety of similar purposes. Pomegranate trees are often seen from ten to twenty feet in height.

Giardini is thirty-four miles from Messina, and thirty-two from Catania. The road for these thirty-two miles skirts the base of Mount Etna, and is everywhere cut through lava in different stages of decay and disintegration, according to the time that has elapsed since the eruption to which it owes its origin. Indeed, the soil is entirely volcanic. Generally speaking, the older the lava the greater the disintegration, and the easier it is to bring it into cultivation, but this rule is not without exception. Some comparatively recent streams of lava have long been cultivated, whereas others that have been

thrown out before our era are nearly as sterile as at first. Within the last few miles of Catania, where the separation of the clinkers, cinders, and soil has not been made, rivers of lava are crossed, lying in masses, in mounds, in sheets, in plains, and producing little else but Crassulaceæ. The fertility of the lava is evidently the result of human labour combined with artificial irrigation, brought to bear on it when decayed by atmospheric influences and by time.

This entire coast possesses a kind of strange fascination. On the one side is the blue sea that separates us from Greece, on the other the immense mass of the great volcano, towering into the sky between two and three miles above the sea-level. Grim as the landscape appears with its lava-dust soil, only here and there concealed by a sparse vegetation, it is viewed with intense interest. On every side is the evidence of innumerable eruptions, that have given birth to innumerable streams of lava, both in historic and pre-historic times. In some localities these lava rivers have evidently flowed into the sea, filled up its depths, and pushed back its shores for miles. In others, as at Aci Reale, the lava cliff, six hundred feet high, has clearly been partly formed by an uprising of the coast and of lava streams previously deposited in deep waters. In these cliffs are to be found many caves, into some of which the sea dashes with mysterious, unearthly sounds in stormy weather. Basaltic columns are also to be seen, nearly as curious and as perfect as those of the Giant's Causeway in Ireland, or of Fingal's Cave in Scotland.

It is in this region, and in that of Etna in general, that the ancients placed the earliest events of their mythology. Sicily itself was dedicated to Ceres, the goddess of agriculture. Jupiter reigned on Mount Etna, and it was under its mass that he placed the revolted Titan Enceladus.

The convulsive movements of the crushed Titan were the cause of its eruptions. It was in the fertile plains of Enna, at the western base of Etna, that Proserpine was plucking flowers when Pluto carried her off. It was in the same plains that lived Daphnis, the son of Mercury, who invented pastoral poetry to please Diana, the great huntress.

The Cyclop Polyphemus lived in one of the lava caverns on the coast, and there pursued with his love the nymph Galatea, who preferred the shepherd Acis. Polyphemus, in his rage, threw a rock at his unfortunate rival, and thus destroyed him. Acis was changed by the gods into a river, and this river still runs through the town of Aci, named after Galatea's lover.

It was in a port on this coast, choked by a lava stream in the Middle Ages, that Ulysses took refuge, and fell into the hands of the same Polyphemus—

> "Portus ab accessu ventorum immotus, et ingens
> Ipse; sed horrificis juxta tonat Ætna ruinis."—Æn. iii.

In the sea near Aci, are seven lava or trap islets, remarkable for the numerous basaltic columns they present. These islets were believed by the ancients to be the very rocks thrown by Polyphemus after Ulysses and his companions, after they had escaped from his cave. They bear to this day the name of *Scogli de' Ciclopi,* rocks of the Cyclops.

Catania is a large and rather handsome town of sixty-four thousand inhabitants, situated at the very foot of Mount Etna, where the sea approaches the nearest to the base of the great volcano. It is all but encircled by arms or rivers of lava. At the memorable eruption of 1669 a stream of lava, a mile wide, reached the walls of the town; then it divided and swept into the sea on both sides of

the city, not without destroying part of it. The lava, where it reached the sea just two centuries ago, still looks as if it had only been emitted last year. It is piled on the shore in heaps, like thousands of tons of coal, and gives a very grim, coalpit-mouth appearance to the immediate vicinity of the town.

Catania (*κατ' Αἴτνης*, under Etna) was one of the earliest of the Greek colonies, having been founded probably about 730 B.C. It soon attained great wealth and prosperity, with a numerous population, owing, no doubt, to its proximity to Greece, and to its being the natural port of the rich and populous district of lower Etna and of the surrounding plains. Although many times destroyed by the sword, and even more frequently still by the eruptions of its friend and enemy, Mount Etna, and by the earthquakes that so often precede and follow them, Catania has always been rebuilt, to recommence its career of prosperity. In modern times the most complete destruction was that commenced by the eruption of 1669, which overwhelmed part of the town. The ruin was all but completed by the earthquake of 1683, which scarcely left any houses standing, and buried fifteen thousand persons under the ruins.

This time the town was rebuilt with architectural method and precision. More peaceful times had arrived; the necessity of cramping the city between narrow walls had ceased, and Catania was rebuilt with, for the south, wide, handsome streets. Hence the modern appearance that it presents. It is said that this open style of architecture, although pleasant in winter, and at all times healthier, makes it insufferably hot in summer, the more so as the streets nearly all run regularly north and south, east and west. From its south-east exposure Catania is much warmer in summer than Palermo, which has the benefit of the north sea winds. The maximum heat at

Palermo in summer averages 86° Fah., whereas at Catania it averages 95°. At Mentone the maximum only reaches 81°, less than in London or Paris.

Catania is the residence of many of the Sicilian aristocracy, some of whom are men of considerable wealth, even according to our ideas. As they travel, and often reside a part of the year abroad, they attain a high degree of intellectual cultivation, which makes their society, I have been told, very agreeable for those who are admitted into the inner circle.

In former times, in the days of the Greeks, Syracusans, and Romans, property was much divided in Sicily, and agriculture flourished more than in any part of Europe. Hieron of Syracuse published an agrarian code, which was considered so perfect by the Romans that they adopted it. During the dominion of the latter, Sicily was so fertile, and so very productive in cereals, that it became the granary of Rome. The Saracens still further promoted agricultural progress by introducing an improved system of irrigation, and various new species of culture. The conquest of Sicily by the Normans had a disastrous result. They introduced the feudal system, all but dividing the island between powerful barons and ecclesiastical corporations, often non-residents. A large amount of land fell out of cultivation, and as subsequent governments have, until the recent fall of the Bourbons, encouraged this social condition, agriculture has never been able to recover itself, or at least to resume its former position. Even now, many of the large proprietors let their estates in the block to middle-men, who let and sublet until the last tenant is ground to the earth.

In such a climate, and with such a soil, however, progress is sure to follow enlightenment, and the regeneration of Italy will extend by degrees to Sicily. No doubt

the increased facility of communication which steam affords, and the propagation of the doctrines of free trade, will gradually work great changes in the ideas, both of the territorial aristocracy and of the nation at large.

Mount Etna, called Mongibello, or mountain of mountains, by the modern Sicilians, does not overshadow the town, although the latter lies at its foot. The ascent is so gentle, on this, the south side, that it is twenty-nine miles from Catania to the summit. On the north side, where the slope is much more abrupt, there are points where the ascent is only twelve miles. This slope is divided into three regions: the cultivated region, *pie di montana*, or *colta*, which extends about ten miles, and is the fertile region; the woody region, *regione nemorosa*, or *bosco*, which extends some six or eight miles in width; and the desert region, *regione diserta*, which commences, according to Admiral Smyth, at a little above six thousand feet, and extends to 10,874, the height of the centre cone of Etna, according to the measurements of the same authority. In winter the two upper regions are covered with snow, which must exercise a marked influence on the climate of Catania, and of the plains which surround the base of the mountain.

I arrived at Catania at the end of April, and carefully examined the vegetation with reference to climate, as I had done at Palermo. I found two gardens worthy of notice, one on the port, sheltered and protected by the town, with a rivulet running through, which gives an abundant supply of water, the other at the convent of Benedictines. The Benedictine monks have a very handsome church and monastery on the north-western limit of the city, immediately facing Etna. The great lava current of 1669 submerged the old garden and stopped within ten feet of the church; a miracle the monks

thought due to their prayers. The present garden is built on the lava which covers the former one, on a level with the first story of the convent. There is no protection whatever between it and the mountain, and at night a cold down-draught must set in from the snow regions. As a result, this garden, notwithstanding its sunny exposure and low latitude, might almost be in a sheltered spot in England. The flowers were only the earliest spring flowers, such as anemones, and the geraniums were all in pots. Indeed it was by no means as advanced as a garden at Nice would be at the same epoch of the year.

The difference between this garden and the one on the port, protected from the Etna down-draught by the town, and exposed to the south-eastern sun, was very striking; the latter was one mass of flowers, all planted out—Geranium, Verbena, Heliotrope, Petunia, Antirrhinum, Nasturtium, red Linum (called Inglese by the gardener). Everything was growing with the wildest luxuriance and beauty. The garden was a regular carpet of flowers, and vegetation was as far advanced as it would be in a well-cultivated garden in England late in July.

The examination of these two gardens was conclusive. From its southern latitude, and from its full exposure to the south-east, Catania would have necessarily a very mild winter climate, were it not for the immediate vicinity of the extensive snow-clad plains of the upper regions of Mount Etna. From their gentle slopes there must be a nightly down-draught, or land-breeze, unintercepted by any ridge, which must make the nights cold from December until May. When I was there at the end of April, in magnificent sunny weather, the nights were colder than I had felt them for a month before anywhere else in the Mediterranean; I had to get up in the night to partially close the window, and to put a cloak on the bed. A careful

pilgrimage through the cultivated region of Mount Etna to Nicholosi confirmed this view.

Nicholosi is a well-known village, twelve miles from Catania, in the direction taken for the ascent. There is a good road, and it is usual for those who wish to ascend to drive in a carriage thus far, and then to take mules. As I was not in a state of health to attempt the entire ascent, I limited my excursion to this, the easy stage of the enterprise.

I found evidences everywhere of cold winter nights, as on the Riviera, as at Naples and Palermo, and also of cold down-draughts up to that time from the snow-clad plains of Etna. The deciduous trees, Mulberry, Fig, or Almond, which were the most numerous, were not in leaf, the Vine was only sprouting; the flowers and ground vegetation reproduced at every step the contrast between the two gardens at Catania. Wherever there was any little valley, any depression, or any ridge to the northwards, vegetation was luxuriant; it was that of June and July with us. Moreover, in these spots were generally growing Orange and Lemon trees. Where there was no protection, and on exposed ridges, the ground vegetation was backward, and there were neither Lemon nor Orange trees to be seen.

This drive is a most singular and interesting one. The most exuberant fertility exists; but in the midst of cinders, scoriæ, and lava-dust. It is perfectly evident that the decomposed lava contains the elements required for vegetation, and that once it is reduced to the state of soil by time, all that is wanted is sunshine and water. The first is ever present in this favoured climate, the second can be and is obtained even on the flanks of Mount Etna, the melting of the snow that falls and lies on its summit furnishing a never-failing supply.

This, the cultivated region of Mount Etna, is so fertile that from time immemorial it has been dotted with towns and villages, which now number sixty-five and contain three hundred thousand inhabitants, all living comfortably on the bounty of the soil. It produces abundantly oil, wine, lemons, oranges, almonds, cereals, silk, and fruits of every description.

Nicholosi is composed of low, one-storied, solidly-built cabins or houses. They are thus built as a precaution against earthquakes, to which this village is even more exposed than Catania. It is more than two thousand feet above the sea, and the view both of the mountain and of the plains below, of Catania, and of the sea, is very beautiful. In the immediate vicinity are two volcanic cones, the Monti-Rossi, which are of recent formation; they were thrown up in the eruption of 1669. One of the peculiarities of Mount Etna is that its eruptions have, from time immemorial, as often, or oftener, taken place from new cones formed on the flanks, as from the principal one at the apex. There are hundreds of these secondary cones of all sizes on the sides of Etna, extending from the upper or deserted region to the cultivated one. Many of the cones are of great size. Thus one of the twin Monti-Rossi, so named from their red colour, is two miles in circumference at its base, and is by no means one of the largest. These cones are side by side, and protrude from the mountain like two half-spheres. They are quite naked, but many of the secondary ones are clothed with timber, which sometimes extends down to the bottom of the old crater; the effect is then very picturesque.

Tourists who intend to ascend to the summit of the volcano, here take guides and mules, and begin the more fatiguing part of the ascent, through the woody region of

the Bosco. The species of the trees vary in different regions of the mountain, but in the south-east, or Catanian side, they are Oaks, Firs, Beech, Cork, and Hawthorn. There are many wood-covered cones in this region, and they are said to be very lovely, as are these woods in general.

I was told both at Catania and at Nicholosi that the forest glades, especially in the higher wooded regions, are cool and pleasant in the most scorching heats of the Mediterranean summer. It struck me that nature has provided an admirable sanitarium, the very place I was searching for, as yet quite ignored, in the sylvan retreats of Mount Etna.

In Switzerland the physicians of the large towns, such as Geneva, Lausanne, and Lucerne, are well aware that the great heat of even the Swiss plains is very injurious to the sick, to the weak, and to all convalescents, and that cool mountain air is life in such cases. They have, therefore, by their advice, led to the establishment all over Switzerland of mountain hotels or pensions, at elevations of from two to three or five thousand feet. To these hotels they send many convalescent and debilitated persons during the summer months, and to them also resort multitudes of the sound and strong, to escape from the extreme heat of July and August.

Why should not our heat-oppressed and fever-stricken countrymen in the South Mediterranean, at Malta, Naples, and elsewhere, establish some such sanitarium or mountain pension on the cool slopes of Mount Etna? Would it not even be worth while for our government to found such an establishment for the troops at Malta? Invalids have now either to bear the tropical heat of Malta, or to be sent home, a long and expensive journey.

Were such a sanitarium established there would be no real difficulty in obtaining supplies, in the immediate

proximity of a large city of sixty-four thousand inhabitants, with a good carriage road as far as Nicholosi. This village being twelve miles from Catania, there would only remain three or four to ascend on mules, to reach the probable site. Such a sanitarium would, I feel convinced, be a great boon to southern Europe, and I hope yet to see it established.

The deserted region, very aptly so called, comprises the last four thousand five hundred feet of the volcano. In winter it is entirely covered with snow, which descends low down into the Bosco; in summer, it is only partially so covered. It contains no life, vegetable or animal—scarcely a lichen or an insect, and is a desert of ashes, scoriæ, and cinders. The final cone, now eleven hundred feet high, rises out of a wide and long plain at the summit of the mountain; its height varies from one eruption to another. Sometimes part of it falls into the wide crater, and thus the height of the mountain is lessened; sometimes a new eruption of ashes and lava rebuilds it higher than ever. Mount Etna is truly a magnificent and intensely interesting sight; it is certainly the most wonderful object in nature it has ever been my good fortune to see, and is alone worth the trouble of a journey to Sicily.

In conclusion, I saw no reason to think that the winter climate of Catania was superior or even equal to that of the Riviera, and to that of Mentone in particular. As we have seen, it is exposed to cold winds from the north and north-west, the direction in which Etna lies; that mountain being covered with extensive plains of snow all winter, down-draughts from these snow plains must reach it. The north-east winds also must be cold, for they come from the Calabrian and Dalmatian mountains, which are high, and also snow-covered during the winter.

The mean winter temperature of Catania, like that of

Palermo and of Naples, is higher by some degrees than that of Mentone and of the Riviera; but I believe that in both localities the fact is in a great measure owing to the occasional prevalence of southerly winds, and especially of the sirocco, or south-east wind. The latter comes from the African deserts, the hottest summer climate in the world, like a blast from a furnace, gathers a great amount of moisture from the sea as soon as it touches it, and reaches Sicily as a hot, damp wind, most enervating and relaxing. It is dreaded throughout the island, as at Malta, even more by the natives than by strangers, and is decidedly the weak point in Sicilian climate. It generally lasts three or four days, with the thermometer from 90° to 95°, although it feels much higher, producing excessive dejection and lassitude. While it continues it is a source of the greatest discomfort to the entire community, to the sound as well as to the unsound. As I have already stated, the trying nature of the sirocco, or south-east wind, as we reach the more southern regions of the west Mediterranean, to a great extent counterbalances the advantage gained by increased sun heat. The sirocco appears to be more oppressive at Palermo, although on the north coast, than at Catania, or in any other part of the south of Sicily generally. This is supposed to be owing to the reverberation of the sun's rays from the rocks in the mountain amphitheatre behind Palermo increasing its heat. During its persistence the streets are deserted and silent, the natives shutting themselves up in their houses with closed windows and doors. This wind was as much detested by the ancients as by the moderns. Admiral Smyth says it was, without doubt, "the evil vapour of Homer (Iliad v.), into which Mars retreated when wounded by Minerva."

Nevertheless I think the climate of Catania in winter

would probably suit those who require a sunny, temperate region, rather drier and more bracing than that of Palermo. To some the proximity of the king of European volcanoes, the strangeness of this volcanic soil, the facility with which from it other parts of the Mediterranean can be visited in spring or autumn, may appear a positive advantage, and incline them to choose Catania as their winter abode. The town appears to be exceptionally clean and open for a southern city. As yet, however, there is no special accommodation for invalid strangers, so that all the disadvantages of having to break new ground would have to be encountered. To the adventurous this is a pleasure, but, as already stated, I do not recommend those who have never travelled, those who are ill, or those who are dependent on English domestic comforts, to leave the beaten track. They are best in those parts of the continent which the English have long frequented, and which have thus been moulded to English tastes and requirements. There might be some little advantage, in an economical point of view, but it must be remembered that economy, on the Continent, is invariably connected with the absence of the comforts to which we, as a nation, are accustomed. The more comfortable, the more English a place becomes, the more expensive it also becomes. Moreover, the further we go from home the greater the expense of reaching it, and the more difficult it is to get back, once arrived at our destination.

The object of my excursion to Sicily was more especially to study the position and climate of Palermo and Catania. Having brought this investigation to a satisfactory issue, I felt free to depart. Catania is, however, too near to Syracuse, and Syracuse is too intimately connected with the history of the ancient Greeks and Romans, which all but engrosses our youthful thoughts during twelve or fourteen

years of early life, for a strong desire to visit it not to arise. There was a small Sicilian steamer, starting the next day, and as it proved calm and fine I went on board at 10 A.M.

This time I was again quite alone. My young German Baron had proved a very agreeable companion at Messina, notwithstanding his heraldic carpet-bag. Once we had left his countrymen at Palermo, and he found himself alone with me, all stiffness and hauteur disappeared. He seemed to lean upon and to confide in me, and we spent several days together very harmoniously, then separating, he for Naples, where he intended rejoining his family, I for Catania. Whilst at Catania I found, at the hotel, two French gentlemen, returning from a winter journey up the Nile; the one a leading Paris physician, the other a French Count, an enthusiastic sportsman. We at once fraternized, and I derived much information from them.

The physician gave me a minute account of his medical experience on the Nile, which quite confirmed my previous ideas on the subject. The nights are very cold, and on a river, in a frail boat, it is impossible not to feel it. The days are very hot, and as the boat is then always on the move, there is no escaping from the sun's rays. Then, as the boat is progressing from sunrise to sunset, exercise has to be taken after mooring, in the evening, when a chest invalid ought to be shut up in a well-built house. This is the more disastrous, as no amount of resolution can induce even a confirmed invalid, who has been cooped up all day in a boat, to deny himself the luxury of a stretch when he stops at night, especially if there are all kinds of interesting monuments of past eras within a mile or two of the shore. This gentleman summed up his experience by saying, that a winter journey up the Nile was a most glorious excursion for a sound man, able to bear extremes

of heat and cold, and to put up with occasional hardships, or even for those who, without actual disease, are tired, wearied by the labours and pleasures of town life, but that it was nothing short of insanity for a confirmed consumptive patient to undertake such a journey. He much regretted having sent patients there in the course of his previous career.

From his friend the sportsman I heard many interesting accounts of sport and of wild-fowl shooting on the banks of the mysterious river. These details, however, only served to convince me of another great danger to invalids with a sporting tendency. To have a gun and to be near flocks of birds every evening, is a sad temptation, which few can withstand. Yet what can be more dangerous for a consumptive man than to spend the day in a heat of 75° or 80° Fah., and then to go off shooting on the margin of a river at sunset, with the thermometer at 40°, or even below.

The morning was, as usual, very beautiful, and the motion of the vessel was so easy and steady that there was no excuse for being even uncomfortable. The blue sea danced merrily at the bows of the little steamer, and as we receded from the land, whilst crossing the Gulf of Catania, the mountain of mountains (Mongibello) rose higher and higher on the north-western horizon. Indeed, the further we receded the grander and more imposing did Mount Etna become, distance merely bringing out in greater relief the colossal proportions of the king of volcanoes. Catania soon became a mere mass of white houses on the seashore, whilst above was spread out, as in a panorama, the different regions of Etna—the green cultivated district, dotted with numerous white villages and towns—above, a wide belt of forest trees, the Bosco, of a more sombre hue—and then a naked region which

extended higher and higher to the abode of eternal snow. From the sea, at the distance of some thirty miles from Catania, not only were all these details distinctly visible, but the large plain at the summit, and the terminal cone rising from its centre, also came into view. This cone, although rising eleven hundred feet from the terminal plain, appeared to be merely a small mound.

There were no foreigners on board except myself; all were Sicilians, so I had to make myself as agreeable as I could, in rather second-rate Italian, to the captain and his lieutenant. The steamer was a small coasting vessel which once a fortnight performed the journey from Palermo to the Lipari Islands, Messina, Catania, and Syracuse, and back. I had been cordially received on arriving on board as *un Inglese*, an Englishman, and by this name, or by that of *il Inglese*, the Englishman, I remained known both during this and the return voyage, as also at Syracuse. I now felt that I had quite got out of the beaten track, and that my own identity had completely merged into that of my nationality. The officers of the ship, although civil and obliging, readily answering any questions, were evidently not classical scholars, or even historians. They told me they could not well understand what we "Inglesi" went to Syracuse for. It was not a pretty town, and there were only a few old ruins, "delle antichità," of no great interest, to see. The magic of the past was a closed book to them; they could not shut their eyes and see before them, as a thing of to-day, the great city of former times, with its eight hundred thousand inhabitants, its palaces and temples, its wealth, its numerous legions, and its hundreds of triremes or vessels of war.

On the other hand, they were quite alive to all questions pertaining to present times, were enthusiastic in

behalf of *Italia Unita*, and told me that all the young men in the island were in favour of the annexation to Italy, of the expulsion of the Bourbons, of free trade with other nations, and of progress in general. We shall never again, they said, put our neck under the yoke of the retrograde party.

While coasting the low shore of this part of Sicily, a number of quails came hovering round the vessel. Just arrived from the continent of Africa, and tired with their long journey, the poor birds of passage wanted to rest on our ship, the first "land" they had reached. The officers armed themselves with guns, and shot at the weary birds as they approached us, an act of cruelty I could hardly forgive. The birds were evidently so tired that, although driven away by this harsh reception, they soon returned to the vessel for rest. Fortunately, my friends were not good shots, and did but little execution. Quails arrive in great numbers in every part of Sicily at this time of the year, but more especially on the south coast.

About four o'clock in the afternoon we rounded the cape of Panagia, came in sight of the far-famed promontory of Ortygia, on which the town of Syracuse is situated, and were soon safely moored in the spacious port. This port is one of the very best in the Mediterranean, according to modern authorities, although it was believed to be too shallow to admit large vessels; it was Nelson who first showed the fallacy of this view, by sailing in with a large fleet.

Syracuse is, perhaps, the most interesting spot in Sicily, on account of its grandeur and great prosperity in ancient times, of its intimate connexion with the national history of Greece, Carthage, and Rome, and of the numerous remains of antiquity that it still presents. It

was founded one year after Naxos (734 B.C.) by a colony of Corinthians, and rapidly attained a degree of wealth and prosperity unrivalled by any other of the colonies of Greece. In the year 485 B.C., under Gelon, it was able to offer thirty thousand men and three hundred vessels of war to Greece when attacked by Persia, and a few years later defeated the Carthaginians at Himera, and crushed their power in Sicily. In the year 415 B.C. began the deadly struggle with the Athenians, which ended by the defeat and capture of the Athenian general Nicias and of his army, after one of the most celebrated sieges in ancient history—a siege vividly described by Thucydides. It is said by this historian, that the power of Athens never recovered from the defeat. The names of the Syracusan kings or tyrants, Hieron, Thrasybulus, Dionysius, Timoleon, Agathocles, are mixed up inextricably with Grecian history. Under them the population of Syracuse reached eight hundred thousand, and their dominion extended over the greater part of the island. The town itself was fourteen miles in circumference.

In the year 214 B.C. Syracuse was besieged by Marcellus, the Roman general, and fell before his legions, notwithstanding the bravery of the inhabitants, and the skill of Archimedes, the greatest mathematician and engineer of Grecian times, after an independent existence of 522 years. Syracuse then became merely a Roman provincial town, and one hundred and fifty years later Cicero resided there as prætor. He has left, in his oration against Verres, a graphic description of its beauty, of its monuments and wealth. Subsequently it followed the fortunes of the rest of Sicily, gradually losing the importance it had acquired in ancient times.

Even now, however, after the lapse of more than two thousand five hundred years, Syracuse is a rather hand-

some provincial town of more than sixteen thousand inhabitants. The modern town is still situated on the peninsula or island called Ortygia, connected artificially with the mainland in ancient times. It was on this peninsula, about two miles in circumference, which partially forms the greater port, that the town of Syracuse was first founded. As it rose in importance and prosperity it overflowed on to the mainland, until five new towns, there situated, were comprised within its walls. By degrees, these suburbs or towns of former days have decayed and crumbled into dust, until now a few ruins are the only evidence of their presence. The most important and interesting are the Latomiæ or quarries, the catacombs, the remains of the Greek theatre, of the Roman amphitheatre, of the walls that surrounded the city, and fragments of various temples and buildings. All these ruins are deserving of careful study and investigation, as is the town itself. The latter contains much to interest the classical traveller, and more especially a temple of Minerva, now officiating as the cathedral, and the fountain of Arethusa, still as clear and as abundant as when in olden times the Greeks thought they saw in it the nymph Arethusa hastening to the sea, and mingling her waters with those of her lover Alpheus, the river god, from whom she had tried in vain to fly.

The fountain of Arethusa is an abundant spring of fresh water, which bursts out of a cave on the seashore of the island of Ortygia, and which was and is still separated from the sea by one of the bastions of the city wall, so as to form a semicircular pool or basin. It was supposed to be part of a neighbouring river, the Alpheus, which had passed under the sea that separates the island from the mainland by a subterranean passage. Thus Virgil describes it in the "Æneid:"

"Alpheum fama est huc, Elidis amnem,
Occultas egisse vias subter mare; qui nunc
Ore, Arethusa, tuo Siculis confunditur undis."

Carried away by classical recollections, I forgot at first meteorological and botanical studies, but soon my thoughts returned to a more practical channel. At Syracuse, and in the plains that surround it, I found that the cooling influence of snow-clad Etna was evidently less. The Lemon and Orange trees were creeping out of valleys and shelter, and were larger. Still even here, in the extreme south of Sicily, the value of protection is fully illustrated. The two largest Orange and Lemon trees that I saw in Sicily were growing in one of the Latomiæ; the Lemon tree was as large as a good-sized oak. These Latomiæ are enormous excavations or quarries in the solid rock, made in the days of Syracusan prosperity, to furnish stone for its temples, its walls, its buildings. In one of these were long confined Nicias and the seven thousand Athenians taken with him on the banks of the river Asinarus, when they fled, defeated, from the walls of Syracuse. Another, a vast excavation in the shape of the letter S, is still called Dionysius' ear, from its being supposed that it was excavated in this shape in order that the tyrant Dionysius might hear the conversation of his prisoners, from a private chamber acoustically contrived.

These quarries or excavations, from fifty to one hundred feet deep, have been for centuries converted into gardens, and are the scene of the most luxuriant fertility; many of the Lemon and Orange trees are regular forest trees. At the bottom of this novel kind of Sicilian conservatory they have sunshine and warmth, and quite escape all cold winds.

The view from Syracuse and from the heights to the north-east called Acradina, where the principal part of

old Syracuse was built, extends over a marshy, ill-cultivated, unhealthy plain, through which meanders the river Anapus. This plain, of alluvial soil, contributed to maintain the eight hundred thousand people the city formerly contained. The soil and sun are there, still the same, but the labour of former days, the energetic action of man, is wanting.

The more I see of the south of Europe the more I become convinced that its vaunted fertility is a mere myth, unless labour and capital can be brought to bear. Southern rivers left to themselves carry devastation with them, denude the mountain regions, overflow the plains, and render them pestilential marshes, as we have seen when speaking of Corsica. It requires immense labour, and great capital, to keep them within bounds, to make them fertilize the regions which they would otherwise destroy or render uninhabitable. Withdraw the labour, and leave them to themselves, and you very soon get marshes like the Pontine, the Tuscan, the Corsican, now all but uninhabitable from malaria, but which formerly nourished hundreds of thousands of inhabitants. On the other hand the mountain sides, the dry plains in the south, left alone, unwatered, are parched, burnt up by the sun. They too require labour and capital for their inherent fertility to be developed.

Syracuse was the most southern region of Sicily that I reached. I was very desirous, as previously stated, to have examined the central and south-western regions of the island, and could easily have done so by returning to Palermo through these parts of the island. The reports of danger to travellers, however, that reached me at Palermo were confirmed at Syracuse, so I thought it best to retrace my steps, and return by Catania and Messina. I should have wished to have gone back by Malta, Tunis, Algiers,

and Marseilles, which would have been a very delightful extension of the tour, but I am professionally due in London by the middle of May, and had not time for further wanderings.

Limited as it thus proved, my exploration of Sicily was, however, sufficiently extensive to demonstrate the fact already asserted—viz., that four or five degrees of latitude merely compensate for the complete protection from the north winds which is found in the more favoured parts of the Riviera, between Nice and Genoa. That such is the case is evident from the circumstance, that not only are the vegetable productions of Sicily and of that region all but identical, but that the progress of spring is the same in the two regions. We must allow an advantage, however, to Sicily, even on the north and east coast, wherever there is shelter and protection from the north, or from cold mountain blasts. No doubt on the south-western coast, opposite Africa, this advantage is still greater, but I do not think it would be possible for invalids to pass the winter in any of the small towns of the south-western coast with any degree of comfort. It may at least be surmised that such is the case, from the fact alone that travellers have to take provisions with them, as for a sea voyage. Evidently, away from mountain influences, in Sicily there can be no frosts of any importance, as the Lemon tree everywhere grows and flourishes under such circumstances, whilst a few degrees of frost destroy the tree, and one or two, in damp weather, may destroy the fruit. The nights, however, must be cold until April or May, as shown by the tree vegetation, and as is the case on the two Rivieras of Genoa, both on the east and the west.

On returning to Messina I learnt, to my great satisfaction, that the French Syrian steamer was expected from

Alexandria the next day, a Monday, and would sail for Marseilles direct; and that day was spent rather anxiously waiting for it. The sense of isolation had increased upon me, and now that my thoughts were turned homewards, I was anxious to depart even from sunny, smiling Sicily. I shall never forget the satisfaction with which I saw the *Euryanthe* enter the port towards evening, as I was sitting alone at the window of my room. She is a noble screw steamer of more than two thousand tons, and glided silently and majestically into the port, like a large black swan, like a thing of life.

We started that evening, passed the ever-smoking, ever-flaming Stromboli volcano a few hours later, and then were soon out of sight of land in the old Tyrrhenian Sea. The steamer was a splendid ship, with accommodation for a hundred and thirty cabin passengers. As there were not thirty on board, I had a large cabin to myself, where I slept nearly as well as I should have done in my own house. We were three nights and two days on board, from Monday evening to Thursday morning, when we reached Marseilles, and, as the weather continued fine, I quite enjoyed the voyage, although a bad sailor in bad weather.

My compagnon this time was a middle-aged merchant captain, who had been beating about the world for more than thirty years. He told me many strange tales, but none more interesting than his own. Three years previous he was in command of a merchant ship bound for Buenos Ayres. When nearing the American coast he was overtaken by a terrible storm, and after battling with the elements for three days and nights, the ship became water-logged, utterly unmanageable, and was cast ashore. The breakers and surf were terrific, and, alone of all the crew, he reached the land, he scarcely knew how. On

recovering from the first stupor he found that the coast was a low sandy one, with no evidence of habitation. He was overcome with fatigue and drowsiness, never having slept for three nights and days, and finding two empty casks on the beach, knocked the heads out, put them close together, and crept in for shelter, as there was a cold wind blowing. In this impromptu retreat he slept twelve or fifteen hours, but, on awaking, found that he could not move. The two casks had slightly parted, and between the two a small chink or space remained, through which the wind had struck his loins, producing a band of acute rheumatic pain. He was rescued by some of the inhabitants of the country, attracted to the spot by the wreck, but never recovered the effects of the night's exposure, and had never since then been able to follow his usual seafaring life. He had consequently accepted the office of surveyor to Lloyds.

The duty of the surveyors to this insurance company is to transport themselves, when ordered, to any point where a wreck occurs, to examine into the circumstances of the case, in the interest of the company, and to make certain that the claim made for insurance is perfectly true and real. He had just been sent in this manner to the vicinity of Brindisi, in the Adriatic, to examine into a case of wreck. A vessel laden with corn had gone aground in a gale, and the captain had reported that it was a perfect wreck, and that ship and cargo were lost. On arriving he found the ship stranded, but not broken up, and by a judicious expenditure of about five hundred pounds, he had got it off, thus saving both ship and cargo, and his employers many thousand pounds. He told me that he lived with his wife and family at Bath, and that he was thus liable at an hour's notice to be sent to any part of the globe on similar missions. He was paid by a

regular salary, with the addition of travelling expenses. It is a singular position, to be quietly at home with one's family in the morning, in an inland town, liable to be sent at an hour's notice to any part of the habitable world, say to China, to Australia, to South America.

On the morning of the second day we passed through the straits between Corsica and Bonifacio. These straits are most picturesque, and the steamer glides between rocks and islets, very similar to those that skirt the coast on the way from the Crinan canal to Oban. Caprera is passed at the eastern entrance of the straits, and we looked with interest at Garibaldi's little house, which we saw distinctly. These straits are free from danger in fine weather, but are said to be very perilous in stormy weather, especially to sailing vessels. There are constant wrecks in winter, and principally at the western entrance, near Bonifacio. Two English steamers were lost this spring, and I was told of a singular and disastrous wreck that occurred at the time of the Crimean war. A French transport, with eight hundred men and many horses on board, on their way from Toulon to the Crimea, was wrecked near Bonifacio, but saved. They managed to land on the Corsican coast, and were taken back to Toulon. From thence they made a fresh start for the Crimea, in a steam frigate. Again at the Straits of Bonifacio they encountered a severe storm, and this time the vessel foundered, and not a soul was saved. There certainly was a fatality over these poor soldiers.

Our progress continued easy and prosperous in the splendid ship. Several times the sea rose, but we did not seem to feel it in the least, so great was the size of the vessel, and so free was it from motion. On the Thursday morning we reached Marseilles, fifty-six hours after leaving Messina, and then all isolation finished, for

even thus early I found myself in the midst of valued friends.

Since this very agreeable excursion to Sicily was undertaken, Mr. Murray has published his guide to that interesting island. It is certainly one of his best, full of antiquarian lore, and calculated to make the English traveller feel quite at home in every stage of his journey. I much regret that I did not possess it when there, for I could not discover a reliable guide.

CHAPTER XII.

THE ITALIAN LAKES.

LAKES ISEO—COMO—LUGANO—MAGGIORE—THE SIMPLON PASS.
THE SCOTCH LOCHS—LOCH AWE—LOCH MAREE.

"I love to sail along the Larian lake
Under the shore—tho' not, where'er he dwelt,
To visit Pliny . . . . So I sit still,
And let the boatman shift his little sail,
His sail so forked and swallow like,
Well pleased with all that comes. The morning air
Plays on my cheek how gently, flinging round
A silvery gleam . . . . ."—ROGERS' *Italy.*

EVERY year, as spring approaches, the Mentone community begins to form plans for the return home, and I am always implored by friends and patients to sanction their travelling by way of the Italian lakes and Switzerland. The desire is very natural; there is such a poetical halo about these lakes, such sublime grandeur in the great Alpine passes, that it is quite distressing to be so near and not to see them, especially when they can be brought, with ease, into the home journey.

My prudential objections to this route were frequently met by the inquiry whether I had myself passed the Swiss mountains in spring, and as I was obliged to confess I had not, I was often thought to exaggerate the danger. I therefore determined, in April, 1864, being myself quite convalescent, to adopt this route on the return journey to England, and to judge for myself. This time I secured some agreeable companions, and was thus independent of "travelling acquaintances."

On the 8th of April, when we left Mentone, summer had regularly commenced in the Riviera. The spring flowers were passing away, and those of early summer had made their appearance; the days were warm and cloudless, and the nights cool and pleasant, the thermometer never descending below 50°. The mountain sides were clothed in verdure, and perfumed with wild Thyme, Rosemary, and mountain Lavender, the Willows and Poplars were in full foliage.

On leaving Genoa and passing the protection of the Apennine chain, April 11th, a great change was observed. Although the sun was bright and the weather fine, winter still reigned in the plains of Lombardy, the trees were leafless, the hedges and ground bare. Indeed, the spring was not more advanced than it usually is in England at the same period owing, evidently, to want of protection from the north winds. The high Swiss mountains, although running due east and west, only protect the regions immediately at their base; the north winds pass over these favoured spots to descend in full force on the plains beyond.

Nothing can be more dreary and more monotonous than the fertile plains between Genoa and Turin, once the railroad emerges from the Apennines, at this time of the year; nor was the region between Turin and Milan more favoured. These plains are perfectly flat, and are merely divided into segments by ditches or small irrigation canals, bordered with pollard Willows or Poplars, still quite devoid of foliage. Along the railway, from Turin to Milan they are principally cultivated with Rice, and the agricultural labours of spring were in full operation, part of the country being laid under water by artificial irrigation. The process appears to be, first to plough the fallow land, and then to divide it into fields of from ten to twenty

acres by banks of mould, one foot high. Water is afterwards let in, so as to thoroughly saturate the ground; it is then drawn off, the rice sown, and the field again covered with water to the depth of two or three inches. The water must be raised by artificial means, for the irrigation canals are, in most instances, considerably below the level of the fields.

The country itself appeared very prosperous; there was building going on in every village or town we passed through, and throngs of well-dressed, well-fed people, of all ranks, got in and out of the trains wherever we stopped. A little before we reached Milan we came to the station of Magenta, a name henceforth sacred in Italian history. It was here that was fought, between the French and Italians and the Austrians, the great battle, the gain of which may be said to have established Italian independence. It was difficult to believe that this calm and tranquil little village had been, only a few years before, the scene of one of the greatest battles of the century, that the very station we were in, situated in the thick of the fight, was taken and retaken half a dozen times, and that tens of thousands stained with their blood the verdant fields around. Near the station is seen a monumental pyramid, erected by the Italian government to the memory of the brave men who fell in the battle.

I experienced great pleasure in again seeing Milan in its new position—as one of the chief cities of a free and independent state, of "Italia Unita." I several times visited this city in the epoch of Austrian rule, and always mourned over its dejected, enslaved appearance. In those days large bodies of fair-haired Austrians, in their white uniforms, seemed to occupy it as a foreign army would occupy a city after a siege. They were everywhere—at the gates, in the streets, in the public squares, in the cafés, in the

magnificent cathedral, in the pit of the theatre; they seemed to be lords and masters, and to know it, whilst the poor Italians appeared humbled and dispirited. Often I could observe a scowl of hatred flash over their face as their northern conquerors swaggered past, their swords clanking on the pavement. I cannot understand any one being twenty-four hours at Milan or at Venice, in those days, without feeling an ardent sympathy for the oppressed Italians,—an ardent desire to see their northern masters obliged to recross the Alps.

Now the state of things is altogether different; there are no more foreign soldiers to be seen, and the few warriors who are visible wear the national uniform. The streets are thronged with happy, contented faces, and the evidences of individual prosperity, and of active healthy municipal life, are met with on every side. The city is being quite transformed; new streets of fine houses are being built in the suburbs, public buildings are being renovated, and plans are being matured, which, if effectually carried out, as no doubt they will be, must make Milan a truly splendid city. Among these is one for clearing the vicinity of the grand cathedral of a host of inferior dwellings, and for erecting a range of first-class mansions, in unison with this noble structure, one of the finest specimens of Gothic architecture in the world. The cathedral is indeed worthy of every effort being made to bring its proportions into view; it is inexpressibly majestic, both internally and externally, worthy of a great and free nation, and deserving of a special visit to Italy.

On looking round and witnessing these evidences of renewed national life, I could not but regret that the poet, Samuel Rogers, did not live to see the fulfilment of his singular prophecy contained in the noble lines, reproduced at the head of the ninth chapter, p. 228. His heart would

indeed have warmed to see the country which he loved with such deep and sincere affection rise from "the dust," shake off its chain, drive away the eagle "cowering over his prey," and, for "the third time," reassume its rank among nations. Most truly and prophetically did he say, "AND SHALT AGAIN."

The weather was beautiful while we were at Milan, but we were told that the favourable change had been quite recent, and that a few days before there had been a fall of snow. After devoting a day to the city, its cathedral and the improvements, we again took the rail, the line from Milan to Venice, bound for Lake Iseo. At Palazzolo, the second station beyond Bergamo, we alighted, took a local conveyance, and were soon at the "Albergo del Leone," Iseo, the distance being about eleven miles.

The Italian lakes—Garda, Iseo, Como, Lugano, Maggiore, and Orta—occupy deep basins or depressions at the southern base of the high Alps, as the Swiss lakes occupy similar depressions at the foot of the Alps to the north. The principal difference is that the south side of the Alps is much more precipitous than the north, so that the Italian lakes lie on a line, immediately at their base, whereas the Swiss lakes are at the extremity of valleys, which extend some distance from the great mountains. In both cases these lakes are formed by rivers that descend south and north from the snow and glacier-covered mountains, and from all of them great rivers depart, carrying away their overflow. According to the most recent geological views, these lakes, even where one or two thousand feet deep, have probably been scooped out, in former geological epochs, by glaciers descending along the valleys at the termination of which they lie.

The longitudinal valleys, lying due north and south, in which the Italian lakes are situated, are not only pro-

tected from the north by the higher Alps, but also from the north-east by descending spurs that occupy their eastern shores, and from the north-west by the Alps of Savoy, which take a south-westerly course.

This peculiar protection from the northern quarters gives them a totally different climate to that of the plains of Piedmont and Lombardy, which we had just left. It seemed as if we had repassed the Apennines, and had once more reached the Riviera and summer. For some miles before we arrived at Iseo the vegetation was again that of June, and the gardens were full of early summer flowers; the Hazel, the Willow, the Poplar were in full foliage, the Fig trees were in leaf, and the Vines had made shoots several feet long.

Lake Iseo is a small, picturesque lake, but little frequented as compared with its larger neighbours, Garda and Como. It is about fourteen miles long, and from two to three broad, and lies immediately at the foot of the Alps, to the north east of the town of Bergamo, and to the west of Garda, the largest of the Italian lakes.

The town of Iseo is a mere large Italian village on the borders of the lake, and the "Albergo del Leone" is a very unpretending establishment. The rooms, however, which are tolerably clean and comfortable, immediately overlook the lake, the scenery of which, as viewed from the inn, or, indeed, from any point, is exquisitely beautiful. From the shores rise, more or less abruptly, mountains several thousand feet high, which, at the northern extremity, rapidly merge into the snow-clad summits of the high Alps. This lake, indeed, struck me as peculiarly lovely, quite as much so as its better-known companions; it is perfectly embosomed in mountains, which in one region rise all but abruptly from the deep waters, whilst in another they slope more gradually, presenting on their sides

luxuriant groves, smiling vineyards, verdant pasturages, and numerous villages.

These villages — white, clean, and picturesque at a distance, whatever they may be when seen closely—dot the hill-side at every mile or half-mile, wherever the slope is not too great to prevent cultivation. Evidently the southern sun enables their inhabitants to extract the elements of life—corn, wine, and oil—from the very rock itself. Thus, the mountains, which in our climate would only support a few sheep and cattle, in this favoured region maintain a teeming population. It is the same at all the Italian lakes; wherever the mountain is not perpendicular, there are villages on the mountain-side, with their white-turreted churches, every half-mile. There they lie, basking in the sun as it were, nearly all the year round, little knowing the privations and hardships that are endured by their fellow-mountaineers, living on the north side of the mountains that limit the horizon, only a few miles distant.

The charm of Lake Iseo, in my eyes, consists in its not being such a sea of waters as the larger lakes, Garda and Maggiore. It resembles one end of Lake Como, and has the same kind of beauty, that of a fine expanse of water, the opposite shores of which are easily discernible, although reaching north and south as far as the eye can penetrate. Then there is a peculiar fascination about these southern but yet Alpine waters; the sky is pure and blue in fine weather, such as we had all but invariably, and the air is fresh and clear, much more so than it is with us on our finest summer days. Thus all objects in nature stand out distinctly on the horizon, and the most distant mountains are seen with the naked eye almost as well as with a telescope.

The scene was truly enchanting as we sat on a small

terrace in front of our inn, against which the tiny wavelets broke with a gentle rippling sound. Before us was the clear lake, studded with little fishing-boats and with large market and ferry-boats crossing from Pretore, on the opposite side beyond the lake the mountain, its flanks dotted with white villages, whilst, between, at a distance of some two miles, a large island rose boldly a couple of hundred feet above the surface of the waters.

In the afternoon we took a boat, and were gently rowed to this island. On landing at a little pier we found ourselves in the midst of a fishing village, one of the prettiest and most picturesque I ever saw; it was the most charming combination possible of the Alpine, fishing, and Italian village. Quaint gabled cottages, picturesque costumes, nets hanging to dry from every house, black-eyed, black-haired maidens, chubby, rosy, half-naked children, old wrinkled women with their distaffs, like the Fates of the heathen mythology, and fine old men with flowing white locks, the Nestors of the village. We were evidently a source of great curiosity to them, for they all came out of their houses, and stood in a line looking at us; the village had only one row of houses along the shore of the lake. Young maidens smiled and laughed and smiled again, the elders looked demure but inquisitive, whilst the children, as usual, followed in a group. They were clearly desirous to get a good view of the strangers, whose advent produced quite a sensation.

At the end of the village we found rich undulating meadows on the margin of the lake, the northern end of the island. The grass was knee deep, and enamelled with innumerable flowers—Primroses, Violets, Hepaticas, Buttercups, and a hundred others. The Mulberry trees were in leaf, and the vines trailing from tree to tree were beginning to be covered with foliage, and to assume a

grace which they have not when leafless. We were sorry to depart, but the afternoon was on the wane, and we were obliged to leave the "lonely isle" in the midst of Lake Iseo.

We soon got into the way of lounging on the waters, than which nothing can be more delightful, especially when surrounded by grand and beautiful scenery. It is certainly the height of idle enjoyment to sit or lie comfortably in a boat, gently impelled over the water in the midst of a magnificent landscape illuminated by the glory of the southern sun. Nor can anything be devised more conducive to health for an invalid; it is exercise without fatigue, and enjoyment without exertion, combined with pure air and sunshine. Time glides away imperceptibly, especially if the excursion is shared with two or three agreeable companions, home is reached with a good appetite, and a sound night's rest generally follows.

Having explored the part of the lake near Iseo, we determined to make an excursion to Lovere, a town at the head of the lake, some ten miles distant, and started after breakfast in a large boat rowed by two men. Our course was prosperous, and we were entranced with the increasing beauty of the shores of the lake and of the mountains by which they are limited, as we approached the upper extremity. On rounding a promontory, we found ourselves in a kind of secondary circular lake, about eight miles in circumference, at the bottom of which is Lovere. This little town is known in English literature as having been long the residence of Lady Mary Montagu, who gives a very glowing description of it in her correspondence; it is prettily situated and clean, but not otherwise remarkable. We were shown to an inn, the "Canone d'Oro," evidently the country palace of some Milanese nobleman in former days. There was a

large interior courtyard, with peristyle and arcades, and grand frescoes on the walls representing all sorts of people and things. The rooms were vast in size, ornamented with half-effaced carvings and gilding, and the beds were "such beds!" what they call in northern Italy "letti matrimoniali." We might call them family beds, for they are at least twelve feet wide, and are certainly large enough for an entire family, father, mother, and children. They are only met with now in very old inns, in out-of-the-way places such as Lovere.

In my youth I was an enthusiastic fisherman, and a little of the old feeling still remains, so in leaving for the Italian lakes I had put a couple of rods in my portmanteau, intending to depopulate their waters. I had repeatedly tried my hand since our arrival at Iseo, but all my Scotch lore appeared lost on its finny inhabitants, I could not get a rise or a bite. It will, therefore, be easily imagined that I was much gratified to find that there was at our hostel an English gentleman who had been residing there for nearly two years, solely for fishing and shooting. I at once sent in my card, asking for an interview; this was granted, and an invitation to go out fishing the next morning at six was eagerly accepted. I was punctual to the appointment, and we spent several hours together.

My new acquaintance was fishing for a very large kind of bull trout, from ten to twenty pounds in weight, which inhabits the deep waters of the Italian lakes, and gave me much interesting information respecting it and fishing in general in this part of the world.

These monster trout have been known to exist from time immemorial by the local fishermen, but were considered to be all but inattackable until, a few years ago, an English gentleman taught the fishermen of Lake Garda how to catch them. In summer, when they are spawning,

they are occasionally seen in shallow waters, but they then refuse to take any kind of bait, and in winter, when they are disposed to feed, they live in the deepest waters of these lakes, which are from one to two thousand feet deep. The depth of Lake Iseo is nine hundred, that of Garda one thousand nine hundred feet.

My Lovere companion was fishing in the following manner:—The boat, a flat-bottomed one, was rowed by two men; the line, of stout whipcord, was about three hundred yards in length. Four hundred feet were leaded at every ten feet, the terminal lead being heavier than the rest; a few feet from the bottom was a side line, about twenty feet long, and similar side lines were attached at the first, second, and third hundred feet. These were baited with a small fish like a herring, abundant in the Lombard lakes, and called the fresh-water herring. The entire line was cautiously thrown into the lake, until about five hundred feet were immersed, so that the first bait was two hundred feet below the surface, the second three, the third four, and the fourth five hundred feet. The line itself was wound on a large winch or reel, fastened to a small framework, about two feet above the side of the boat. Once the line thrown over, the boatmen rowed us gently about.

This time, also, our efforts, although directed by a skilled hand, proved ineffectual; but I did not regret the early rising, for the morning air was pure and fresh, and the lake was quite calm, as smooth as glass, and inexpressibly lovely, with its frame of grand Alpine mountains. There were other boats out on the same errand as ourselves, gently skimming the surface of the lake. My companion told me that if a boat, manned like ours, caught two, three, or four fish in a week's fishing, it was considered very good sport, and paid the fishermen.

The large trout are much sought after in the great cities —Milan, Bergamo, Brescia—for ceremonial dinners, and sell at the rate of two or three francs a pound, the price paid to the fisherman being at least one franc. Thus, three fish, on an average, in the week, weighing from thirty to forty pounds, would make fifteen or twenty francs each for the two fishermen, more than they could get in winter by agricultural labour. My companion had been fishing all winter, and had marked on a gaff, as a tally, a notch for each victim; I counted forty-seven. When he did not fish he used to shoot wild fowl at the mouth and on the banks of the neighbouring river. He was the only Englishman within thirty miles round, and his solitary sporting existence was a source of great surprise to the Italian population; he was another type of the roving Englishman.

In winter this deep fishing can be carried on all day, but in the fine, sunny weather of early spring and summer the only time when there is a chance is the first and last few hours of daylight. It is the same with us, there is nothing whatever to be done in the fishing line on a fine, warm, sunny, cloudless summer day. This fact alone renders it quite useless for invalids to visit the Italian lakes in spring or summer for fishing; to have any chance whatever of success, they would have to commence operations by four or five o'clock in the morning, and to stay out until dark in the evening, remaining idle all day, from 8 A.M. to 6 P.M. Such a kind of life is only fit for strong, healthy men.

Although there is an amazing quantity of fish in these lakes, the fishermen told me that there was no success to be expected in angling in April and May, as the fish were spawning. Later in the season fish are to be taken with rod and line, but even then only between four and seven

in the morning and six and eight in the evening; in winter all the large fish take to the deep waters.

For want of legitimate sport, when on Lake Como, we were reduced to a well-known poaching manœuvre. I attached sixty flies to a line one hundred and twenty feet long, and carried it along the surface of the water between two boats. In this way we managed to catch a certain number of fish, averaging from half a pound to a pound and a half in weight, a kind of chub. They rose tolerably well, and I was told that a month later they would take the fly still more eagerly. Although it may be difficult in summer to catch fish by angling in the Italian lakes, owing to the intensity of the light and to the glare of the sun, it is certain that they must be teeming with the finny tribe, from the numerous fishing villages, fishermen, fishing-boats, and fishing-nets that are seen on the shores.

Lake fishing is pursued under much more favourable conditions in Scotland. The cloudy sky and occasional showers which are the rule in "ultima Thule," even in midsummer, are propitious to piscatorial enterprise. Moreover, fishing can generally be undertaken and carried on in the daytime, between breakfast and dinner, without fear of the fish being driven to the bottom of the lochs by the glare of the sun. The plan I generally adopt in Scotland is to breakfast at half-past eight and to start at nine. I hire a good-sized boat, rowed by two men, who prepare the tackle whilst I am at breakfast, so that I can begin fishing without loss of time on starting. The boat is rowed gently, at the rate of about two miles an hour, and at about a quarter of a mile's distance from the shore, usually the best fishing ground. I troll with three rods, one with a spoon and heavy tackle at the stern of the boat in deep water for large fish, the other two rods at right angles to the boat, right and left, one with flies on the

surface, the other with a fresh or artificial bait a few feet below the surface. The reels are placed so as to be clear of all obstruction, in order that the line may run freely at the slightest touch. All thus prepared, I and my companions arrange ourselves comfortably on cloaks and rugs at the bottom of the boat, and what with conversation, the observation of nature, and books, the time passes pleasantly and rapidly.

If a fish strikes one of the lines the reel gives a "whirr," and by the rapidity with which the line runs out the size of the fish may be pretty well judged. Instantly the book is thrown down, the rod is snatched up, and then begins the tug of war, often ending in the capture of a red and silver speckled denizen of the deep, a fine loch or sea trout, not only lovely to look at, but promising an agreeable addition to the day's dinner or to the next morning's breakfast. In a country where mutton—first-rate mountain mutton it must be allowed—is the all but invariable fare, for there is little else to be obtained in out-of-the-way places in Scotland, such an addition is often most acceptable. In some of the larger Scotch lakes, such as Loch Awe, there is a large trout, called the bull trout, or Salmo ferox, very similar to the large trout of the Italian lakes. When caught by the spoon, the bait it takes most readily, it affords splendid sport, running out a hundred yards of line at the first start, and taking one or two hours to kill.

At one, the boat is stopped for lunch at some pretty islet, or on some picturesque point of the shore; by that time about eight miles of the shore have been leisurely passed. Half an hour or an hour are spent, lying on the sweet heather, eating and chatting, or exploring the rocks and woodland. These wild spots on the Scotch lochs, far away from the haunts of man, are most fascinating in July

and August. The grass is enamelled with flowers, Ferns grow out of every stony crevice, and thick green velvety Moss clothes the north side of the trunks of trees, covers stones near the beach, at the foot of the mountains, and on rocky mountains' sides, wherever water is trickling down. At the margin of the lake, in low places, are hosts of bog plants, and amongst them the pretty grass of Parnassus, with its delicate cream-coloured flowers; here they can be gathered and examined without fear of "malaria." The boatmen sit a little apart, eat their oatcakes and drink the mountain dew dealt out to them—a never-to-be-omitted ceremony on these occasions. Thus refreshed and renovated, the boat is regained, and if the loch is a narrow one, like Loch Awe, it is crossed, the rods and tackle carefully visited, the flies or bait changed if necessary, and the progress homewards commenced in the same way as in the morning.

If the fish "rise," the three rods give plenty of occupation, and there is very little time for reading, or even for conversation, beyond the expression of fear, hope, anxiety, delight, vexation or pleasure, according as the finny prize is secured or lost. If not, the boat glides smoothly on, sufficiently near the shore for every tree, every shrub, every heron standing quietly in the water watching for its prey, to be distinctly seen. The outline of the mountains, purple with heather in full blossom, the mists that gather along their sides, the clouds that form, break, and re-form in the sky—all are the objects of attention, often the subject of remark. Occasionally a "Scotch mist" descends and breaks overhead as a brisk shower. For this we are quite prepared, and huddle together under cloaks and umbrellas, half-vexed, half-pleased, for the fish rise better after rain. The shower over, we emerge from under cover, like birds from under the foliage of an

oak tree, and the wraps are dried in the sun, which generally shines forth after the rain. If a good-sized fish takes the bait whilst it is raining fast, there is a regular commotion. It will not do to lose him, and yet the necessary operations can only be carried on by despising all shelter and disturbing the snugness of the bad-weather arrangements, at which the ladies all but invariably complain.

Things do not always go on smoothly; little accidents and adventures occur, perhaps rather disagreeable at the time, but a source of merriment afterwards. A storm and adverse wind may rise when the boat is miles from home; the waves may run so high, and the wind be so strong, even on these Highland lochs, that the vigorous rowers prove all but powerless to urge on the boat. We have then to land, fortunate if we can find a road, a farm house, and a cart with some straw at the bottom, in which to make our way home. Sometimes there is no regular road, no house, and the margin of the lake has to be skirted as best possible. On one occasion, on landing for the midday rest, I fell right into the loch up to the neck, but fortunately there were some charcoal-burners near, with a rude tent. I had to ensconce myself therein, amidst the laughter of my companions, whilst my clothes were dried, receiving no commiseration from any one. Only three or four can manage comfortably in one boat, but two or three boats can join, start at ten minutes' distance, meeting at the same place for the midday rest.

After a day thus passed on the waters it is very seldom that a good appetite is not brought back, and that a good night's rest is not subsequently obtained. There has been no fatigue, no excitement, and yet the entire day has been passed in the open air, in communion with an ever-beautiful nature. My taste for fishing first led me to try this life when I seriously broke down in health, and no plan that I

have ever since adopted for the improvement of health has been half so beneficial. To my surprise, neither I nor those with me ever catch cold, although thus living on the water exposed to frequent showers of rain. It was this circumstance that first opened my eyes to the fact that colds are seldom caught when the thermometer is between 55° and 65° Fah., whether it rains or not, as explained in a previous chapter.

There are very few Scotch lochs where a settlement, such as I have described above, may not be made, for there are comfortable little Highland inns on all of them. My favourites, however, are Loch Awe in Argyleshire, and Loch Maree in Ross-shire. Both are long and narrow, which renders it possible to fish both sides the same day, and both are in the midst of the most wild and beautiful scenery. In his way, Ben Cruachan, on the north shore of Loch Awe, three thousand feet high, is all but equal to any of the mountains which embosom the Italian lakes; his beauty, however, is of a different kind—it is stern, severe, Ossianic. Rising as he does, at the head of his loch, he is ever before you, sombre and majestic. There are several little shooting and fishing inns on or near Loch Awe—at Dalmally, Cladich, and Port-Sonachan.

Loch Maree is much further north and more difficult to reach, but it is better stored with fish, and especially with sea-trout. Loch Awe is by no means as well supplied with trout as it was some years ago, owing entirely to the casual and unfortunate introduction of pike into the lake. This tyrant, or shark of fresh waters, was unknown until about twenty years ago, when several were thoughtlessly placed into a small pond or tarn far away in the mountains, the overflow of which runs into Loch Awe. The young pike soon found their way down the tributary, took complete possession of the loch, and have greatly

damaged the trout and salmon fishery. Pike are fortunately still unknown in Loch Maree. There is a little inn at the lower or southern extremity of this loch, called Kinloch Ewe, which is comfortable, but a mile and a half from the head waters—rather a drawback. The scenery, too, is even sterner, wilder, and grander than at Loch Awe, always excepting my favourite Ben Cruachan.

At the head of Loch Awe there are a number of very picturesque islets, celebrated in the Highland traditions. On one of these islands called Inishail, or the Beautiful Isle, are still seen the ruins of a nunnery of the Cistercian order. Even in these wild northern regions the monks and nuns of old seem to have shown their usual love of the beautiful in nature. I have often thought, when looking on the ivy-clad ruins of their former abodes, that in the barbarous, savage days over which we so love to cast a kind of false romance or glamour, sensitive poetical natures must have often been positively driven to the cloister to escape contact with the rude beings who surrounded them. Certainly, the monks of old have shown that thorough appreciation of the beauties of nature which in our own times is specially the attribute of intellectual, cultivated minds.

Another of these islands was the burial-place of one of the neighbouring Highland clans. An English artist recently lived for nearly two years on one of the largest, in a kind of log cabin or moveable house, which he brought with him. He wished to study nature in her various moods, angry and smiling; to analyse wind, cloud, and storm, sunshine and zephyr, with a view to improvement in his art. He has written a pleasing book of poems on the isles of Loch Awe, and also a very interesting work descriptive of the loch, and of his studies thereat, entitled "A Painter's Camp in the Highlands."

The mention of my favourite pastime has carried me far away from sunny Italy and from its smiling lakes, into the wild and sombre country of Ossian; I must return to beautiful Iseo. After breakfast we started from Lovere for home, but were soon deservedly punished for despising local knowledge. Our boatmen told us the night before that we ought to leave at seven o'clock in the morning in order to reach Iseo before the "aura" arose. The *aura*, or slight breeze, is a wind that commences daily in summer about ten or eleven, in the south of the lake, and blows upwards to the north, that is, from the plains towards the mountains; it is the representative of the daily sea-breeze on the coast. The mountains being warmed by the sun's rays, heat the air in contact with them; it rises to higher atmospheric regions, a vacuum is formed, and cooler air rushes in from the plains of Lombardy to supply its place. The warmer the weather the more decided the aura or south breeze; at night, on the contrary, there is a down-draught from the mountains. These winds render the navigation of the lakes easy; the boats and barges descend from north to south at night with the north land or mountain breeze, and ascend in the daytime with the aura or south breeze.

We thought that by taking an extra rower we should meet the emergency of the case, but we were mistaken. We proceeded merrily, with all but a calm for the first hour, until about eleven o'clock, when, on rounding the promontory, we saw a mile ahead of us a swell rapidly advancing; it was the aura. It soon reached us, progress became laborious, and some of our party soon began to feel uneasy. We therefore landed at a populous village, —there are such villages every few miles along the shore,— obtained a local conveyance, and left the boat to its fate.

A week passed rapidly at our pretty lake-side abode, most of the day being spent on the water, with benefit

to mind and body, and then we departed—not without regret—for Bellaggio, on Lake Como. Bellaggio is easily reached by rail to Lecco on one arm of the lake, and by steamer or private carriage from thence. This pretty village thoroughly deserves its Italian name, "beautiful residence." It is situated on a promontory that juts out into the middle of the lake, where the three arms or divisions meet, commands them all, and, in my opinion, is by far the most enjoyable position on Lake Como. There are several good hotels, and the one at which we stayed, the Grande Bretagne, is a most comfortable and agreeable residence. The terraced garden in front descends down to the lake, and the views are truly splendid in every direction, mountain and sky blending everywhere in glorious harmony, with all the southern characteristics described when speaking of Iseo.

Life at Lake Como is essentially "Lacustrine," if I may venture on so scientific a term, by which is meant that it is spent on the water, as at Venice. All excursions are made, all the palaces and gardens are reached by water; so that the gondola or boat becomes, as it were, a part of one's existence. For my own part, not only did I join my friends in all their promenades and excursions, but when at home, in early morn and until late at eve, I made it—the lake—my abode. In leisure moments, and all were leisure moments in these happy days, instead of lying on a cloak on the grass, musing, reading, or looking at the clouds, as at Mentone, I used to take a little skiff, with a pretty fringed, red and blue striped awning, and with or without a companion, I rowed into the lake, a mile or two from the shore. Then I laid down the oars, and, alone in the little world of waters, lying at the bottom of the boat, surrounded by all that is most lovely in nature, fanned by the real zephyr of the old Roman poets, I mused or read

until social obligations obliged me to take up the oars and to return to the real but "flowery" life at the hotel.

There are various palaces to see on the shores of the lake, which are principally of value as giving a motive for excursions. Pliny's villa would be very interesting if it could be shown, but although he had several on the shores of the Larian lake, "Hujus in littore plures villæ meæ," Epist. ix., the memory even of their site has not survived.

The gardens of these palaces are much more interesting than the palaces, in my opinion, for they are full of very beautiful flowers, which give positive evidence of a mild climate, of mild winters, and of early springs. The principal feature in them was, April 20th, the luxuriance and great size of the Camellias, Azaleas, and Magnolias. The Camellias were growing in the open ground as bushes or small trees, from twenty to thirty feet high, covered with tens of thousands of white and yellow flowers; the Magnolias were quite forest trees, like middle-sized oaks, and were white with huge blossoms. All our early summer flowers were in bloom and growing luxuriantly. There were Lemon trees planted, espalier fashion, in the open, but then they are covered up with mats all winter, and these mats had only been recently taken off, so that they looked very meagre and straggling.

The recollection of my residence at Bellaggio, although so enjoyable in every respect, is saddened by an event which painfully reproduced my former Naples experience. In the same hotel were an American gentleman and three young daughters. They came from Como on the same steamer as ourselves, one day that we had been there for an excursion, and I noticed on board that one of the young ladies appeared to have a bad headache, and to be too ill to enjoy the scenery. The next day I was consulted by her father, and found to my deep regret that she presented

all the symptoms of severe typhoid fever in its early stage. The family had spent part of the winter at Naples, and had only left it a few days previously. I did what I could for my young patient, a charming girl of nineteen, whilst I remained, and placed her in the best medical hands I could find when I left. She was very ill, but I thought her youth, medical treatment, and the pure air in which she was, would triumph over the disease. It was not to be, however, her young days were numbered, and I subsequently heard that after our departure she got rapidly worse, and died in a few days. The poor girl was fatally poisoned by the deadly emanations of fair Naples, and only left it to droop and die. Most truly might it be said in her case, and in similar ones, "vedere Napoli, e poi morire."

From Como we went to Lugano, staying there a couple of days. The impressions of former visits were revived, and they are not very favourable to Lugano; it has always struck me that this lake and its town have a cold, sombre, northern look. There is not about it the smiling grace or southern sunniness of Como, Maggiore, Iseo. From thence we took a carriage to Lake Como, and the steamer across to Baveno, where we again settled down. Lake Maggiore has all the charm of Como, but it is on a larger, vaster, wider scale, and the mountains that surround its southern shores are lower, less Alpine. The Borromeo islands, situated about a mile from the beach, near our abode, are interesting and picturesque, but do not certainly deserve their great reputation. The palace is second-rate, and the gardens are stiff and formal.

From Baveno we made an excursion to Lake Orta, a lovely little lake embosomed in the mountains, rather like the upper extremity of Lake Iseo, with a pretty town, opposite a picturesque house and garden-covered islet,

at the southern end of the lake. We made also various excursions in the vicinity, with great joy and delight. Nature was everywhere glowing with extreme luxuriance, all the trees were in full foliage, the meadows were up to the knees in grass, and the early summer flowers were strewn over the fields in wild profusion. Indeed, the earth was enamelled with flowers, and the rocks were fringed with ferns. Groves of the Osmunda regalis were growing on the roadside, and we were constantly stopping the carriage in childish delight, to climb up the high banks and gain new floral treasures.

But all delights must have a term, and the day at last arrived when we had also to say adieu to Lake Maggiore, and to prepare for the great undertaking, the passage over the Alps by the Simplon.

We had engaged a commodious vetturino carriage, with four horses, and started on one morning, the 4th of May, for Iselle, a village inn four hours from the summit, on the south or Italian side. The weather was beautiful when we left Baveno, and continued fine until we reached Iselle, where we found a good dinner and comfortable beds. The road from Baveno is very picturesque all the way, and the little inn of Iselle is placed in a most romantic situation, on one side of an Alpine cleft or valley, between stupendous mountains, with a brawling river in front, on the other side of the road, hurrying its foaming waters over large rocks and boulders, and frantically jumping over every obstacle and impediment; we went to sleep that night to its lullaby.

The next morning we were up and off betimes. It was raining, and from the moment of our departure the weather got worse and worse; in an hour we reached the snow, and the rain changed to sleet. Then came cloud or mist, which only at times allowed us to catch a glimpse of the

majestic scenes we were passing through, of the boisterous torrents, the riven rocks, the bleak snow-covered mountains, the fir trees, some laden with snow, bending under their burden, others dead, showing merely bare blasted trunks adhering to the mountain side. When we reached the summit, near the hospital, at midday, we were out of the rain, sleet, snow and fog, and the sky was clear and blue; but we were in Siberia, in midwinter. The ground was hidden in a winding-sheet of snow, and the road had been cut through it to a depth of many feet; in some places the wall of snow on each side reached much above the carriage. On descending, on the north side, we passed through numerous arcades or galleries, built to protect travellers from avalanches. Here we found sheets of ice underneath, above, on every side, gigantic, ridiculous icicles, ten or fifteen feet long, and as thick as the trunk of a good-sized tree; we were indeed in the kingdom of frost. I was delighted with all I saw, for during the winters passed in sunny Mentone, I had all but forgotten the look of snow and ice; but it was bitterly cold, although we were in the inside of a commodious carriage, well wrapped up in cloaks. Two or three hours' descent, however, brought us out of winterly weather, and we then found the sun shining nearly as brightly, and the weather nearly as fine as on the south side of the Alps. By six o'clock we were comfortably settled at Brigg, in the valley of the Rhone, and our excursion to the Italian lakes was over.

The three weeks so delightfully passed on Lakes Iseo, Como, and Maggiore cleared up all previous doubts as to the spring climate of this part of Italy. Unless the weather whilst I was there was altogether exceptional, and I was told that it was not, invalids may safely make it their residence from the middle of April until the end

of May or June, passing from one lake to the other as we did. Lake Garda, which I did not visit on this occasion, the largest of all, is placed in the same geographical conditions, and is equally sheltered and sun-favoured, especially the upper or northern extremity, which is more immediately protected by the high Alps; its shores are equally lovely.

During our four weeks' tour we had rain only once, at Iseo. Then it was heavy, and lasted twenty-four hours, with a southerly wind, but the thermometer, previously always about 64° indoors, only went down to 60°. I was told that very often there is a great deal of rain in April, but that it is never cold rain. I presume it usually comes with south winds, as was the case when we were there, and if so it can do no harm, even to those suffering from chest affections. It is well, however, that travellers who intend spending a few weeks on these lakes in the spring should previously know that in some years rain thus falls, in April and the early part of May, frequently and continuously. They must, therefore, make up their minds to run the risk. If it does not rain at this time of the year, the weather is really heavenly. The air is pure, fresh, cool, clear, soft, the sky is blue, with fleecy clouds sailing over it, or lying in white masses on the high Alps. The sun shines brightly but not too fiercely, whilst the higher mountains are still covered with snow, the emblem of departing winter, snow so brilliantly white that it fatigues the eye to look on it for any length of time. In such an atmosphere, among such beautiful scenery, mere existence is an intense pleasure.

The passage over the Simplon at the end of the first week in May, in an exceptionally favourable season, has, at the same time, entirely dispelled any doubts I may have had as to the advisability of chest sufferers returning to

the north of Europe in spring over any of the Alpine passes; it is simply folly even to contemplate it. To pass through such a scene of wintry desolation as I have faintly traced, to remain from six to eight hours in cold rain, sleet, fog, mist, snow, and ice, is an unpardonable imprudence for such persons; it is risking all the benefit gained by the sacrifices and care of the previous six months. Bronchitis, pleurisy, pneumonia, a break up of diseased lung tissue, and a renewal of arrested disease, may be the result. Chest invalids who visit the Italian lakes must either remain there until the middle of June, until the summer has cleared the high mountains from snow, and until fine clear Alpine weather has set in, or they must return to Genoa and Nice, either taking the steamer from Genoa or the Marseilles and Lyons railway from Nice.

The next day we left Brigg, descended the valley of the Rhone, skirted the Lake of Geneva, and reached the town of that name. Geneva, like Paris and Marseilles, is being all but rebuilt, transformed. We found that spring had also commenced along the verdant shores of the lake, but not the spring we had left on the Italian side of the Alps. It was evidently still rather too early a period of the year, May 6th, to be quite safe as a residence for chest invalids who have spent the winter in the south.

CHAPTER XIII.

BIARRITZ AND ARCACHON.

"Loud roared the dreadful thunder,
The rain a deluge showers,
The clouds were rent asunder,
By lightning's vivid powers,
The night both drear and dark.
Our poor deluded bark,
Till next day, there she lay,
In the Bay of Biscay."—*Old Song.*

BIARRITZ AS AN AUTUMN AND WINTER RESIDENCE—SITUATION—CLIMATE—SEA BATHING—THE IMPERIAL RESIDENCE—ARCACHON.

I HAVE repeatedly visited Biarritz as a tourist, and in the year 1857 spent a very pleasant month on its shores (that of September), in order to enjoy the excellent sea-bathing. From that time forward I have often sent patients and friends to Biarritz, that they might benefit in autumn by the sea-bathing, and in winter by the climate—a decidedly mild one as compared with our own.

Living at Biarritz is less expensive, it would appear, in winter, than in most of the southern sanitaria, a fact which makes it a valuable addition to our health "harbours of refuge." It is this fact that induced me to devote a chapter to Biarritz in the second edition of this work in 1862, drawing the attention of the profession to its capabilities and value. Since then it has advanced considerably. I was there in the spring of the present year (1869), and found that many new houses and villas had been built, a very good and large hotel, the Hôtel de

France, an English church, a fine casino or club, and convenient sea-baths. Indeed, the resources of the town have been improved in every respect. I am told that last winter (1868-9) above four hundred English wintered there. Most of the patients and friends I have sent have been satisfied with their winter's experience.

The latitude of Biarritz is the same as that of Pau, 43°; that is, seven degrees more south than Torquay. This situation necessarily implies a warmer winter climate, more sun heat. Indeed, although I have but few thermometrical data on the subject, I presume that the winter temperature of Biarritz must be pretty nearly the same as that of Pau, with perhaps a slight difference in its favour owing to the vicinity of the ocean.

As we have seen, the proximity of the sea always renders the temperature of a locality milder and more equable. The existence also of an extensive tract of dry sand, such as constitutes the Landes, extending a hundred and fifty miles, from Bordeaux to Bayonne, implies paucity of rain, and the absence of that continued precipitation of moisture during the winter that characterizes the more northern sea-coast of France and England. We may positively deduce this fact from the arid dryness of the sandy plains of the Landes of France, whether it be that this part of France is still within the range of the "rainless tract," or that the mountains of north-western Spain arrest and precipitate part of the moisture brought by the south-westerly Atlantic winds.

Biarritz has hitherto only been noticed by writers on climate as a favourite summer and autumn watering-place, but I believe, from the above facts, from the testimony of others, and from my own investigations, that it has also claims to being accepted among the eligible winter stations of the south. As stated above, there are social reasons, also, that make it worthy of notice.

The presence of the imperial family in the autumn, and its own merits, are rapidly raising Biarritz to the position of one of the most frequented and most fashionable sea-side watering-places in France; hence a great influx of sea-bathing visitors in summer and autumn. To provide for their wants, numerous hotels and houses have been built, and an active and extensive system of commissariat has been established.

Once the summer sea-bathing visitors are gone, the hotels and houses are nearly empty, and the supplies find no market. The result is, that in winter Biarritz is as cheap a place to live in as it is expensive in summer and autumn. This state of things will probably long continue, for the summer development is certain to greatly outstrip the winter requirements, even were it to become a winter colony like Pau, Nice, and Mentone. To persons requiring a southern climate whose means are limited, and who are therefore obliged to consider every expense, this consideration may be one of primary importance.

It is impossible that a town situated on the boisterous Bay of Biscay can be equal in point of climate to the Riviera undercliff, or to the east coast of Spain, in cases of severe disease in which the best climate that can be found is required. But still there must be many cases in which the sunshine, mild temperature, and comparative dryness of the south-western coast of France may be sufficient. Moreover, the question of expense is often, unfortunately, a paramount consideration.

Biarritz is picturesquely situated five miles south-west of Bayonne, at the bottom of the Bay of Biscay, a short distance only from the Spanish frontier. It has long been resorted to by the inhabitants of Bayonne and of the Pyrenean district, in summer, for its excellent sea-bathing. It was, however, all but unknown to fame until the present Empress brought it into notice by making

it her marine autumnal residence. Notwithstanding imperial patronage, the position of Biarritz is so secluded, and the distance from the French capital is so great—523 miles—that both its natural and medical advantages and capabilities are as yet only partially known and appreciated.

The climate of Biarritz is modified by its geological as well as by its geographical position. From Bordeaux to Bayonne, a distance from north to south of some 150 miles, and penetrating inland to a considerable depth, extend the vast sandy plains to which the French give the name of Landes. This district, which has an area of 3700 square miles, is often called a desert, but in reality it is merely an immense moor, and is covered with pretty nearly the same vegetation as our own moorlands, heather, ferns, gorse, and pines. The climate, however, being very much warmer and drier than our own, the vegetation is much less luxuriant, more stunted and more thinly scattered. The sand lying on clay, in many parts of its extent there are marshes or ponds.

Indeed, the Landes of France may be said to occupy a medium position between the heather and fir-clad sandy moors of Surrey, for instance, and the arid shores of Eastern Spain or the deserts of Africa, where a greater degree of heat and dryness all but entirely destroys even the vegetable tribes that are peculiar to such soils. This sandy tract is of course remarkable for the warmth of its temperature, which in summer is intense. Although it ceases at the Adour, a river which passes through Bayonne, and which throws itself into the sea about two miles to the north of Biarritz, it exercises a considerable influence over the climate of the strip of tolerable land, some fifteen or twenty miles in depth, which extends from the Adour to the foot of the Pyrenees. Thus Biarritz,

although out of the district of the Landes, participates to a certain extent in the summer heat and the winter mildness of that part of the Gascony of former days.

The heat of summer is tempered at Biarritz by a sea-breeze which constantly blows inland during the day, and by its situation on a different geological substratum—viz., sandstone rocks. The Biarritz lighthouse is built on the first sandstone projection which appears south of the Adour, the coast of the Landes being formed by low ridges of sand. The village of Biarritz is situated on two small bays, which occupy the centre of the Bay of Biscay, formed on the north-east by the low coast of France, and on the south by the base of the Pyrenees and by the province of Biscay in Spain, into which the Pyrenees extend, rising tier over tier.

As the coast at Biarritz attains a considerable elevation, and the two small bays are strewn with large rocks, honeycombed by the ceaseless action of the powerful Atlantic swell, the character of the scenery is highly picturesque. The coast with which I should feel the most inclined to compare it is that of Ilfracombe, in North Devon. It has not, it is true, the stern grandeur which the geological formation there imparts to that beautiful spot, but in some respects it is even more irregular and wild. The friable nature of the sandstone rocks offering less resistance to the action of the Atlantic, they are excavated and fretworked into every conceivable shape.

During my residence in 1857, the weather, until the end of September, was fine; no rain falling except during the night, on two or three occasions. The sky was clear, generally cloudless, the sea blue, and the sun powerful, so much so as to render an umbrella all but indispensable between nine A.M. and five P.M., when walking in the sun. The wind varied between S.W., S., and S.E. When in

the S.W., which was mostly the case, there was always a heavy sea rolling in from the Atlantic or rather from the Bay of Biscay. When in the S.E., which only occurred for a few days, the sea was much calmer. On one occasion, for forty-eight hours the wind was due south. During this time the heat was very oppressive, although the thermometer only rose one or two degrees, from 74° or 75° to 76°. I was told that such was always the case in summer when the *Vent d'Espagne*, or south wind, reigned, and that it was feared like the sirocco on the Mediterranean coast, to which it was compared. The thermometer in a cool, shaded room varied from 70° at night to 72°, 74°, or 76° in the daytime, until the weather broke up on the 26th, when it descended to 70° early in the morning, and to 68° later in the day, at 4 P.M. The temperature of the sea-water I found generally to coincide with that of the morning atmosphere, in deep water at some little distance from the shore.

The beach, as is usually the case on such coasts, is a firm, smooth sand, peculiarly adapted for bathing. There are three distinct sites for the purpose: the Côte du Moulin, the Côte des Basques, and the Port Vieux. The two former are rather exposed situations, on the sides of the small bays, and at both there is generally a considerable swell. The beach shelves gently, and the bathing is excellent; but waves rolling in rapid succession have to be encountered, which to the weak and delicate is rather fatiguing, especially if the sea is rough.

The Port Vieux is a species of natural amphitheatre in the midst of the rocks, opening to the sea. In front of the open or stage part, at less than a quarter of a mile distant, there are several huge rocks, which form a natural breakwater. One of them, called the Grand Rocher, is so large that the sea only breaks completely over it in very

rough weather. Thanks to the protection thus afforded, at low tide the sea in the Port Vieux is all but calm, and at high tide only agitated, in ordinary weather. The Port Vieux is the favourite resort both of the bathing and non-bathing visitors at Biarritz.

Around the concavity of the amphitheatre, facing the sea, as the boxes of a theatre face the stage, are a number of small cabins, built on piles, about four feet from the ground. Those on one side are devoted to the ladies, and those on the other side to the gentlemen. The back entrances of the cabins abut on the cliffs, which rise abruptly to a considerable elevation. On the beach, between the cabins and the sea,—in the pit, as it were,—are placed chairs, which are occupied in the morning by nursery maids and children, and in the middle and latter part of the day by the more fashionable visitors, who congregate to chat in the continental way, and to look on the aquatic appearance and performances of their friends and acquaintances, and of the public generally.

Both ladies and gentlemen wear a "bathing costume." With the former it consists of loose black woollen drawers, which descend to the ankles, and of a black blouse or tunic, descending below the knees, and fastened at the waist by a leathern girdle. On leaving their cabins, they put on also broad-brimmed straw hats, and a wide waterproof cape which they keep on until they reach the water's edge, when it is taken off by the bathing attendant. This costume, like all picturesque costumes, makes the young and the pretty look younger and prettier, but certainly does not set off to the same degree the more matronly of the lady bathers. All, however, young and old, seem totally indifferent on the subject, and pass smilingly before their friends and the spectators, appearing to enjoy every stage of the performance. Most ladies have an attendant,

male or female, and many are, or speedily become, very expert swimmers. They are to be seen daily swimming, with or without companions, at a considerable distance from the shore. The beginners use corks or gourds tied under their arms, but the more experienced discard all such aid.

The gentlemen's dress is a kind of sailor's costume, and as custom gives them more latitude with respect to colour, material, and make, great varieties are observed. The exquisites of the place seem to take a pride in showing themselves off thus prepared for their marine gymnastics. I have often seen them, cap in hand, feet and ankles naked, talking to their lady friends sitting around, previous to taking their first plunge. Once in the water, all the bathers, male and female, mingle together; the timid remaining near the beach, and the bold and learned in the art of swimming striking out into deep water. The utmost decorum, however, prevails; the husband assists his wife, the father his young daughters, but strangers keep at a respectful distance in the water, as they would on dry land.

At first, this aquatic mingling of the bathers strikes the English beholder as an infringement of the laws of propriety and decorum, but a more close scrutiny brings the conviction that such is really not the case,—indeed, that this mode of bathing is infinitely more decorous and decent than that which is pursued on our own shores. The bathers are, to all intents and purposes, dressed; and there is, in reality, no more impropriety in their witnessing each other's marine sports than there is in the members of a masquerade mingling in the streets during the Carnival at Rome or Naples. I may add that, once in the water, a light woollen or cotton dress is not felt, and in no way interferes with liberty of movements and with

the pleasure of bathing. Indeed, when bathing has to be carried on in so public a place, a light costume of this description is a great addition to the bather's comfort.

The natives of southern countries remain much longer in the water than we do, and often make their bathing consist of various stages of going in and out, resting between-times. This they can do with impunity, owing to the temperature of the water. When both the air and the sea are 74° or 76° Fahr., as was the case during the greater part of my stay at Biarritz, bathing is an indescribable luxury, and the inducement to remain in for more than a plunge certainly is very great. I believe that there is no danger in the moderate prolongation of the sea-bath, as long as no sensation of cold or chill is experienced.

The vegetation around Biarritz gives evidence of a southern climate, without, however, being as characteristically southern as that of Nice. Nice is pretty nearly in the same latitude, but is sheltered from the north by the Maritime Alps. At "exposed" Biarritz the principal trees are Planes, the principal product, Indian Corn. The Tamarix grows very luxuriantly, and becomes a tree, some twenty or thirty feet high; but there are no Orange trees, gigantic Aloes, Palms, or Caper plants, as at Nice and along the Riviera. Ferns are very abundant in the lanes, of which there are many in the neighbourhood. They are paths, or cart-tracks, sunk a few feet below the level of the adjoining fields, and their banks are covered with ferns, mostly of the same species as those found in England. Heather grows freely also in the sandy soil.

On the whole, Biarritz is a very enjoyable seaside residence, and presents some peculiarities and advantages which will probably render it useful to our countrymen, now it can be easily reached by the railroad from Paris

to Bayonne, both as an autumn and winter resort. In summer the heat is, no doubt, greater than is agreeable to the natives of our isles, but in September and October the temperature is moderate, and suitable to the healthy. Those who cannot resort to our own coasts in July and August, and to whom a mild or warm temperature is essential, have thus the opportunity of still enjoying at Biarritz summer sea-bathing, at a time when with us both the sea-water and the external atmosphere are becoming chilly.

The village of Biarritz, like all French seaside villages and towns, is built away from the sea, behind the cliffs which form the bay. All French maritime populations endeavour to shelter their homes from the sea, which they seem to look upon as an enemy to be kept out of sight as much as possible. It is a straggling village, composed of two streets parallel to the cliffs, and contains no Marine Parades, no Marine Crescents, but a heterogeneous collection of houses of all sizes and shapes, with booths in the middle of the streets, which give it the aspect of a fair. This appearance is kept up by the stream of people, many in Basque costumes, who pour in all day by the omnibuses from Bayonne, most of them merely remaining a few hours. In other respects, Biarritz is a very quiet place, notwithstanding its being the marine residence of the Emperor.

The presence of the imperial family seems to exercise a great attraction over Spanish visitors, who are numerous. To the Empress, Biarritz is endeared by early associations, for she used to visit it in childhood; moreover, it is a kind of neutral ground where she can meet, without being hampered with courtly etiquette, her Spanish relatives and friends.

The imperial residence, "the Villa Eugénie," is a small,

rather naked French château—a miniature of St. Cloud It is constituted by three sides of a parallelogram, the base being turned towards the sea, and is situated on the beach, on a small terrace, partly artificial. From the drawing-room windows the view is truly marine; nothing is seen but the wide ocean, and some large rocks in the offing, against and over which the surge is constantly breaking. At high tide the sea bathes the foot of the terrace, and in rough weather the waves break over it, and cover the front of the house with their spray; so much so, indeed, that considerable damage is occasionally done, and gratings have been placed at the bottom of the windows to take off the sea-water which dashes against them. One advantage the residents at Biarritz certainly possess over us of the Mediterranean, they have the rolling surges of the Atlantic, the daily rise and fall of the great Ocean swell, and the tempestuous waters of the Bay of Biscay to contemplate.

The Rev. Mr. Crow, the English clergyman in 1862, informed me that in the month of January of that year the average of his daily observations, made at 8 A.M. on a north wall, was about 45° Fahr. The highest temperature during that month at the above hour was 62°, the lowest 30°. In February there was some very cold weather. During seven days the highest temperature was 34° (at 8 A.M.), the lowest 24°. With the exception of that week, the weather was glorious, the thermometer after January varying from 48° to 62°.

These data are just what might be expected. Being situated in the south of France, on the margin of a vast tract of land in which, whatever the cause, less rain falls than further north, Biarritz must be mild, sunny, and comparatively dry in winter. Having, however, no mountain protection whatever to the north, it must also be liable, like Pau, to spells of cold weather when the wind

blows from that quarter. It has not behind it the screen of the Maritime Alps, nor has it the night radiation of the sun-warmed Riviera mountains.

Dr. Chapman, one of the English physicians, who has been practising for some years at Biarritz, writes me that the average rainfall during the last three, for the seven winter months, from the beginning of October to the end of April, has been 25·81 inches, on 76 days. The rain is often very heavy, indeed torrential, several inches falling in the twenty-four hours. On many of the rainy days, however, the fall is very slight.

The wind, when it blows from the south-west or north-west, is often furious. On the 22nd of May, this last spring, there was a gale from the south-west whilst I was there, and the wind was so strong that it was scarcely possible to stand against it. Indeed, in exposed situations, near the coast, scarcely any trees but the Tamarix and a few Conifers will grow, and they are stunted. The Emperor's plantations on the hills behind his house have not thriven from this cause. In sheltered positions, however, trees and flowers grow luxuriantly—Elms, Planes (just coming into leaf when I was there, May 22nd), Arbutus, Magnolia, Berberis. I found Camellias and Oleanders growing in the open ground. Roses, hybrid, tea, and Bengal, were opening into flower, as also Hydrangea Delphinium, Silene, Stock, Peony, Verbena, Rhododendron, Geranium, Petunia. Beans were in flower, Peas in pods.

The exceptional periods of cold weather to which Biarritz is exposed in winter explain its vegetation. Severe night frosts with a temperature of 24°, once in half a century, would destroy all the southern vegetation of the Genoese Riviera—the Lemon, the Orange, the Olive trees, the Palms, the Cacti, and the Lycopodia.

Although I do not think Biarritz altogether suited to consumptive invalids, who require a dry, bracing, mild winter climate, there are, however, many forms of delicacy and of actual disease, in which short spells of clear, cold, bracing weather, and the moisture of the Atlantic atmosphere, are not objectionable. Much colder weather has to be encountered in our English sanitaria—Ventnor, Bournemouth, Torquay, also situated on the moist shores of the Atlantic—than is met with at Biarritz during even an exceptional winter, and yet their value is unquestionable. Probably Biarritz would do as well, but I think I am warranted in asserting that a drier and milder climate than is to be found on the Atlantic shores is more beneficial in consumptive disease.

Arcachon.

Having often heard Arcachon, also in the Bay of Biscay, lauded as a winter resort for consumptive invalids, I determined, in the spring of 1868, to visit it on leaving Mentone. A leisurely journey across the south of France brought me there by the 22nd of April, and I remained until the end of the month examining and analysing the locality.

On this journey I had an admirable opportunity of studying the difference between the climate and vegetation of the Mediterranean basin and that of the shores of the Atlantic. I took ten days to pass from Mentone to Arcachon, only travelling twenty or thirty miles a day. The botanical and horticultural evidence of a comparatively dry climate, of one in which vegetation depended on winter and spring rain, and in which the summer heat was intense, followed me to Toulon, Marseilles, Montpelier, Cette, indeed through Provence, until half way between Cette and Toulouse. Then the proximity, or

rather the influence, of the Atlantic became apparent. The water-courses were more numerous and better filled, grass meadows appeared, Willows and Poplars were frequently seen, and the sky lost the dry blue tinge of the Mediterranean to assume the moist whitish hue of the Atlantic.

Arcachon (lat. 44°) is now a fashionable watering-place, thirty miles south of Bordeaux, in the "Grandes Landes," on the margin of an immense salt-water lake, sixty-eight miles in circumference, which empties itself into, or communicates with, the Bay of Biscay by a narrow channel, only one mile wide. Formerly Arcachon was a mere fishing village, lost in the *dunes* or sandhills of the coast. These sand hills, half a century ago, were entirely denuded of tree vegetation, as was the greater part of the department of the Landes. To prevent the violent winds from the Atlantic carrying the moveable sands into the interior, the French government, at about that period, had the sandhills on the shore, and the sandy plains in the interior, planted with the Pinus Maritima. These plantations have everywhere succeeded, and now the shores of the Arcachon lake, and those of the sea itself, are covered with fine Pine forests, that have effectually accomplished the object for which they were designed. They have rendered the loose sandhills immovable, and thus arrested their progress inland.

The presence of Pine forests, varied as we recede from the sea by deciduous trees, Heather, Gorse, Ferns, by wild plants and flowers, has changed, as by a magician's wand, the character of the scenery. Instead of a naked sun-burnt melancholy coast, lined by soft moveable sandhills, we have one presenting all the charms of wild forest scenery. In the year 1854 some Paris capitalists, with M. Pereire at their head, saw the germ of a profitable

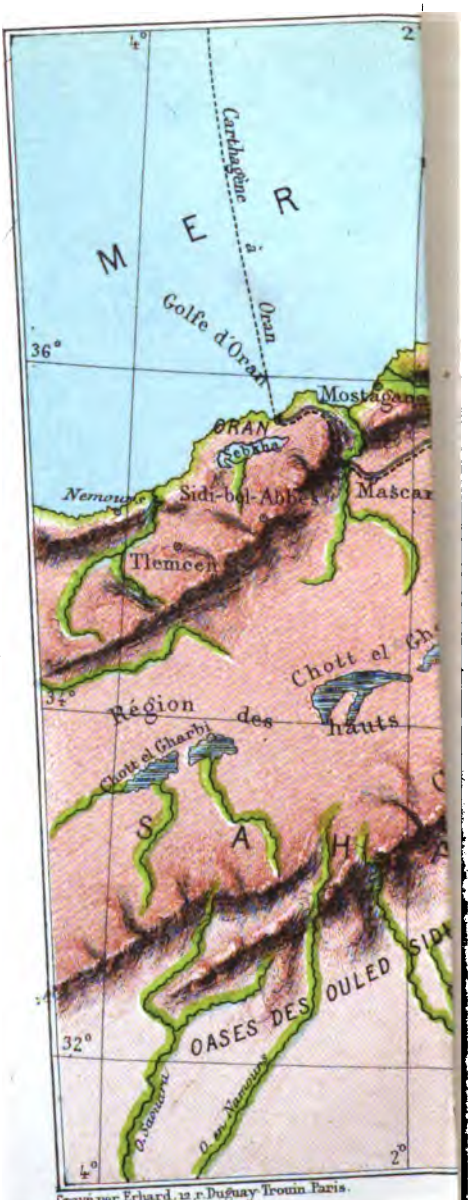
speculation, bought up a large tract of land and founded modern Arcachon. It is now a pretty sea-side town on the borders of the salt lake, with good hotels, picturesque villas, convenient and handsome clubhouse and baths—indeed, all the appurtenances of advanced civilization.

The summer town is built on the sandy shore of the great lake or sea, which affords excellent bathing. The lake itself from its great extent, and from its being landlocked on every side, offers every possible facility for safe boating, yachting, and fishing. A few hundred yards from the shore rise the Pine-covered sandhills, and here, in the midst of the forest, are the villas more especially built for winter habitations. A more lovely seaside spot in spring and autumn, or even in summer, if not too hot, one more calculated to secure all the enjoyments of a seaside residence—bathing, boating, fishing, driving, riding, and walking—it would be difficult to find. I do not believe, however, that it deserves the reputation it has acquired as a winter residence for the consumptive.

A minute analysis of all the physical elements of the question, and a careful survey of the vegetation, lead me to assimilate Arcachon in nearly every respect to Biarritz, situated in the same region, on the Bay of Biscay. There is the same moist Atlantic atmosphere, the same exposure to wind and rain with the prevalent south-westerly and north-westerly winds, the same liability to occasional severe cold in winter from entire want of shelter when the wind is from the north. If I am right, therefore, in the opinion that a mild, dry, bracing atmosphere, such as exists in winter on the Genoese Riviera and on the east coast of Spain is indicated in pulmonary consumption, it is not certainly in such a climate as that of the coast of the Atlantic in the Bay of Biscay that we can expect to

find it. I must refer, however, to what I have said respecting the health features of Biarritz, and would only add that, in my opinion, neither the one nor the other offer to the greater part of consumptive invalids the climate which their disease requires.

In pulmonary consumption it is life itself that is threatened; if the disease cannot be arrested and subdued life is extinguished. Such being the case, once the decision to go abroad has been taken, and the inevitable sacrifices therewith connected have been made, the most rational course is to choose the best accessible climate for such a disease. The best climates that I have yet discovered, the most in accordance with our present improved state of medical knowledge, are the Genoese Riviera, and the eastern coast of Spain. The latter, however, is scarcely open as yet to real invalids, owing to the entire want of healthy accommodation, as will be seen in the chapter on Spain.



Gravé par Erhard, 12, r. Duguay-Trouin Paris.

CHAPTER XIV.

ALGIERS AND ALGERIA.

"From Greenland's icy mountains,
From India's coral strand,
Where Afric's sunny fountains
Roll down their golden sand:
From many an ancient river,
From many a Palmy plain,
They call us to deliver
Their land from Error's chain."

BISHOP HEBER'S *Mission Hymn.*

ON the afternoon of April the 13th, 1869, I left Marseilles, at five o'clock, on board a fine screw steamer belonging to the Messageries Impériales, bound for Algiers. The weather was very fine, the sun shining intensely in a clear blue sky, a light wind blowing from the land, the barometer high, and the sea calm. We glided gently out of La Joliette harbour, and past the Château d'Iff, with all the passengers on deck, as if intent on a pleasure excursion. Many were looking sadly on the land gradually receding from us, no doubt thinking of dear ones left behind, whilst others seemed to scan the horizon joyously; their thoughts were evidently occupied by the anticipation of happy meetings. So it is in life; we are ever parting, ever meeting, sorrowful or joyous, until at last we part to meet no more.

That evening was a pleasant one to all or nearly all. Long before nightfall we were out of sight of land, and we watched the sun go down into his watery couch on the western horizon in great glory. Then we retired to our

comfortable cabins, and most of us found, in balmy sleep, oblivion of the capricious sea that bore us on her bosom. The next morning, there was very perceptible motion, dressing was troublesome, and on going on deck I found that the sea had become rather frolicsome, the ship lively, and that the sky was covered with lead-coloured, water-laden clouds hurrying up in serried battalions from the south-west to fight the sunny north-east breeze that had wafted us so far. About midday we reached the friendly shelter of Majorca, and passed between that island and Minorca. Majorca we did not even see, but we skirted the shores of Minorca for a couple of hours, near enough to scan the features of the country, and to examine, from afar, several villages and towns. The shore appeared to be bounded by high cliffs, precipitous in some places, and the landscape was all but denuded of trees, as I found, later, was the case with the mother country, Spain. When we advanced beyond the shelter which the large island of Majorca affords from the south-west, we got into a regular gale, with a very heavy sea. Our vessel commenced to plunge and roll fearfully, at one and the same time, and I succumbed, as did nineteen-twentieths of my companions. We took to our beds forthwith, and remained in the usual agonies of sea-sickness until our arrival at Algiers the next day. I subsequently learnt that during about eight months of the year—from September to May—the passage from Marseilles to Algeria, and from Algeria to Marseilles, is generally of this character. If fine in the north part of the Mediterranean, there is generally a gale and a heavy sea in the south; and if fine on the African shores there is generally a gale in the Gulf of Lyons.

Whilst enduring all the misery of sea-sickness, I tried to analyse my own sensations, and to find why it was

that I was suffering. The most approved theory is that sea-sickness is a nervous affection, connected with the brain, and with the ever-changing position of surrounding objects, relatively to the body and vision. I feel convinced, however, that such is not the sole cause, from my own personal experience. I have no fear whatever of the sea. Unless actually ill, I delight in being on it, however rough, in any way—swimming, in a boat, a steamer, a yacht, or a sailing vessel. If not very rough, I am quite happy and well, and can eat ravenously. Yet sometimes, if the motion is very great, especially when it is a cross motion, such as a combination of plunging and deep rolling, as on this occasion, I become desperately ill, throwing up huge quantities of bile. What has the nervous system, or change of position, to do with such sickness in one who, like myself, on land feels no inconvenience whatever from any kind of motion or gyration? Whilst lying on my back in the cabin, crossways to the ship, which rolled until twenty times in the minute the port-hole window was many feet beneath the sea, I watched the water in the decanters and basins. As we rolled, the water rolled too, swashing violently from side to side, and I felt that my internal economy was doing the same. At one moment all the moveable contents of the body were thrown one way, into the shoes as it were, the next they were thrown with violence upwards on to the liver. This organ is so imprisoned under the ribs, so bound down that it cannot get out of the way. Tickled, pounded in this manner, it gets angry, excited, stimulated, pours out bile into the intestines and stomach, which ought never to receive it except during the process of digestion, and this occasions sickness and vomiting. This mechanical theory would explain the real efficacy of purgatives taken a day or two before starting, which clear

the liver of bile, of a bandage, which protects it from being thus pounded, of habit, of opiates, and of nerve stimulants, which deaden its susceptibility, and induce it to bear insult and actual blows without resentment.

About nine o'clock the second morning the martyrs downstairs were apprised that Mount Atlas was in view. The temptation was too strong to be withstood, so I crawled up, more dead than alive, to get the first look of "Afric's sunny mountains." But I was amply rewarded for the effort. Far off on the southern horizon, a noble range of mountains loomed on the sky, half clothed in dense clouds. It was Mount Atlas, the Father of Geography, the son of Jupiter and Clymene, the renowned upholder of the world of the ancients. There was nothing southern, however, about the scene. Rain was gently falling, the heavens were covered with dense black clouds, the wind whistled among the rigging, and the steamer madly careered in half a dozen ways at once. We might have been outside the Isle of Skye, in view of the Cuchullin mountains, robed in dense black cloud. At midday we entered the port of Algiers, having steamed four hundred miles in forty-three hours, which is considered a very good passage.

The port of Algiers is commodious and good, formed by two jetties, the one western, the other eastern, both constructed in former days by Christian slaves, and extended and perfected by the French. For centuries thousands of Europeans have pined away their lives under Africa's burning sun to build the works that protect this port. How many an aching heart has entered, as we were doing, their eyes riveted on this southern coast, destined merely to add a few stones to these piers, and then to sicken and die under the lash of slavery, far away from friends, from home, from country.

I was fortunate enough to find accommodation at the Hôtel d'Orient—the best, indeed I believe the only good hotel at Algiers—where I met with all the comforts and elegancies of Paris or London. Time being precious, I at once commenced my local studies according to a plan previously arranged. This plan comprised :—

1. The survey of Algiers and of its vicinity.

2. A journey to Fort Napoleon, a military station built in the centre of the mountains of recently-subdued Kabylia, to overawe the mountaineers.

3. An excursion due south, by Blidah and Milianah, to the desert of Sahara, and the great Cedar forest at Teniet el Hâd.

4. A journey along the valley of the Cheliff, from Milianah to Orleansville and Oran.

This plan was carried out, and I shall follow it in describing my Algerine experiences.

THE CITY OF ALGIERS AND ITS VICINITY.

Most of the views of Algiers that I have seen are mere artistic sketches, and give a very poetical, but very erroneous idea of the Moorish city. The photograph here reproduced is strictly true to nature.

Algiers, situated in latitude 36° 8′, occupies the western extremity, or horn, of a fine bay ten miles in circuit, on the south shore of the Mediterranean, the northern shore of the continent of Africa, and looks directly northwards. This bay is formed by a range of low hills, the Sahel, which follow the western portion of its circuit, expiring at its eastern extremity, but continuing their course along the seashore for many miles to the west of Algiers, beyond the western extremity of the bay. Seen from the sea, Algiers looks like a white triangular sheet, with its base on the shore, its vertex on the summit of the hill. The milky whiteness of the town is owing to the houses having

flat roofs, which do not appear, and to their walls being whitewashed.

In the centre of the bay, to the east of Algiers, the villas of Mustapha Superior and Inferior, the health and pleasure suburbs of Algiers, climb up the slopes of the Sahel, whilst at the eastern angle the expiring and receding Sahel allows the far off summits of the Jurjura mountains to appear on the horizon. These mountains, which constitute the eastern extremity of the first chain of the Atlas, rise to

CITY OF ALGIERS FROM THE PORT.

a height of seven thousand feet, are covered with snow in winter, and, although eighty miles distant, are generally in view from Algiers, lending enchantment to the eastern horizon.

On the land side of the port, at the base of the town, is a fine quay, bounded by a series of stone arcades which contain warehouses and support a noble terrace or boulevard (see engraving), on which, fronting the sea, are built the Government House, the Bank, the Hotel

d'Orient, and other public and private buildings. This quay and promenade terrace were built by Sir S. M. Peto. Behind spreads the town, rising gradually to the Kasbah or Dey's palace, which crowns the whole. The lower part, that in contact with the promenade, the port, and the sea, is occupied by a Parisian-like square, the Place du Gouvernement, planted in part with Palms and Bamboos (see woodcut), by French streets with arcades, like the Rue de Rivoli, and by French many-storied, many-windowed houses. Room was made for these modern buildings by the destruction of a part of the old city. Above modern Algiers is the remainder of the old town, still one mass of oriental streets and dwellings, a southern human hive, still exclusively inhabited by true Algerines.

Although we came into port with a strong north-westerly breeze and a raging sea (April 15th), we found lovely weather on land. The air was pleasantly warm, the sun gloriously bright, its ardour tempered by a slight white haze in the sky. The distant Jurjura mountains, snow and cloud-capped, glistened on the eastern horizon, and the ancient pirate city lay before us in all its strangeness, formerly a whitened sepulchre, now the stronghold of a civilized and Christian nation. After a bath, a little refreshment in the elegant, cool dining-room of the Hotel d'Orient, the first for two days and nights, and the enjoyment of a few hours of land "equilibrium," my thoughts turned to the country I had come to see. I therefore secured the services of Mahmoud, the intelligent Arab interpreter of the hotel, and sallied forth.

The first glance at the motley assemblage that crowded the Place du Gouvernement revealed a southern land, Africa. On all sides were Arabs and Kabyle mountaineers, Negroes and Jews in oriental costume, mingled with Europeans, soldiers and civilians.

One of the strangest of the various costumes was that of some Arab women. Veiled, so that the eyes only appeared, and wrapped up in white, they seemed walking bundles of muslin or shrouded ghosts. All the men, except the Jews, wore woollen bournous, or cloaks, exactly like the opera cloaks of European ladies, with the hood generally drawn over the head. Some had on two or even

VEILED ARAB WOMAN.

three of these bournous, one over the other, in various degrees of vetusty and dilapidation. The lower-class Arabs, Kabyles, and Negroes, never take them off, day or night, merely adding a second or third when the first or the second is too old and ragged to keep out the rain and the cold. Thus they become in time mere bundles of filthy rags of the most grotesque character, of which the engraving only gives a faint idea. Some of the old

beggars and artisans evidently bear on their backs the remains of the wardrobe of their fathers, or of their own early youth. These rags are tied and sewn together in every conceivable manner, indeed it is only a wonder that they hold together.

OLD ARAB MENDICANT.

Many of the town Arabs wear a shirt or a linen tunic, fastened at the waist by a girdle, under the bournous, but country Arabs, the Kabyles, and Negroes, seem generally to wear the woollen bournous only, with or without a woollen tunic inside. The Arabs mostly wear small turbans, but with the Kabyles the hair is bound by a rope fillet which encircles the head. Both races generally have rope sandals on the feet.

The Negroes are numerous, and very characteristic of an African land. They are of all ages, from frisky, merry little children to decrepit old men, whose skins become powdery, of a greyish white, with age. They are the labourers of the town, the carriers of burdens, the working pariahs. Most of them come from far-off Timbuctoo, from the southern regions of the desert of Sahara. They

OLD NEGRO MUSICIANS.

have crossed its sandy plains by a four or five months' journey, in order to reach Algeria, and will probably never see their native country again. Some have been born in the country, and know no other, they are true Algerines.

The Jews are numerous at Algiers. They are said to be principally descended from the Jews of Spain, who when expelled in the sixteenth century took refuge in the

Moorish or Barbesque states of Northern Africa. During the dominion of the Turks, although they were constantly persecuted and ill used, their industry and talent for business enabled them to make themselves indispensable and to hold their own. Since the occupation of the French, thanks to the complete equality and freedom which the French laws accord, they have greatly increased in prosperity, and are said now to own the greater part of the real property of Algiers, and of the Algerine towns. They are the tradespeople, the men of business, the financiers of the towns, and with their semi-Turkish garb, and their strongly marked Jewish features, form a striking element in the population.

The Arabs are a dark-skinned, dark-haired, dark-eyed race. They are numerous, and represent the town descendants of the Arabian conquerors of former days. The nomadic Arabs who inhabit the plains and some of the mountains of Algeria, and the Arab tribes of the desert of Sahara, merely come to Algiers for business or pleasure. Some of the best native families in the city are of this descent. The Arab sheiks, chiefs of tribes, are often very fine men with a commanding presence, and some of their women are said to be very beautiful. The Arab girl, whose portrait is reproduced, may be considered typical. She clearly belongs to the higher class of Arab society. The Arabs dress in the bournous, but the better classes have handsome tunics underneath, with stockings and ornamental sandals or shoes.

The Kabyles are the inhabitants of the Jurjura mountains or Eastern Atlas, seen from Algiers. They are hardy mountaineers, fond of fighting, and had maintained their independence throughout the various occupations of Algeria by successive races. They have only recently been subdued by the French, and are merely retained in

subjection by force of arms. They are a hard-working, as well as a hard-fighting race, and many of them now come to Algiers to work and gain money as labourers, or in any capacity. Some are dark-skinned, whilst others are quite fair. They are evidently a mixed race descended from waves of human beings driven from the plains to the mountains by each successive invasion of the northern

ARAB GIRL.

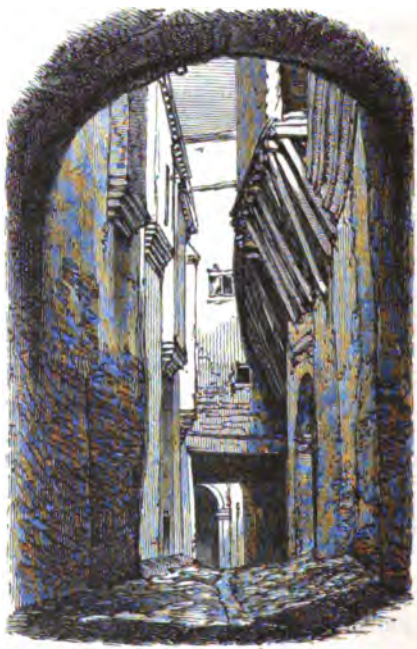
shores of Africa by Romans, Vandals, Arabs, and Turks. Their withdrawal to the fastnesses of Mount Atlas reproduces in Africa the history of the Celts in Europe, that of the Corsicans in Corsica. Like all these mountain races the Kabyles have preserved a spirit of all but indomitable independence, and they resisted the authority

of the French in the defence of their much-valued liberty until within the last few years.

Formerly, when Algiers was a nest of pirates, the Turks formed no doubt the prominent feature, for they were the dominant race. But they have all departed, and their city "knows them no more." They could not brook the presence of the abhorred Giaours, where they had been lords and masters; so they abandoned Algiers and settled in Tunis and Syria, far from the scene of their own and their fathers' misdeeds.

In the French part of Algiers these various races of mankind are mingled in picturesque confusion with Europeans—French, Spaniards, Maltese. But once the modern part of the town is abandoned, and the steep narrow streets of old Algiers are entered, the native races reign supreme, and are alone met. These streets are very singular, only from six to ten feet wide. They just allow room for a loaded donkey or mule to pass a pedestrian, and no more. The houses have no windows, merely a blank wall to the street, unless there be an open shop, without windows, at the basement. Each house has a small closed door, which leads into a passage or room abutting on a square central court-yard or garden. All the windows in the house look on this central court, for there are none in the outer walls, so that the sun never impinges on a window. These houses are only two stories high, with flat roofs, and in summer an awning is spread over the central court from the roof. Thus there is shade and freshness everywhere. This, the oriental style of house, is adopted all over southern Spain—at Cordova, Valencia, Seville, and is much more adapted to a burning southern summer than the Parisian houses of many stories, all window, often directed full south, which the French are building all over Algeria. There are often

beams projecting above head from house to house in these narrow streets, and wooden buttresses from one story to another, or from the street to the side of the houses, propping them up, owing, no doubt, to the walls giving way from old age. Sometimes the houses communicate



STREET AT ALGIERS.

overhead, and the street passes under them, under a kind of arcade (see engraving).

In the open shops on each side sit Arab, Jewish, or Negro tradesmen or merchants, cross-legged, smoking their pipes and waiting for customers. In these various shops is sold every conceivable kind of merchandize, the higher grade shops being kept by the Arabs and Jews,

the lower, for eatables especially, by most fantastic negroes, men and women, young or old. A prominent feature in these old Moorish streets or lanes is the coffee-house or "café Maure." Mussulmans not being allowed by their religion to take spirituous drinks, seem to satisfy the craving for nerve stimulants which characterizes civilized humanity by constantly imbibing coffee. These coffee

JEW COFFEE-SELLER.

shops are found every few doors, and address themselves to every variety of customer. Thus there are cafés for the Arabs, the Kabyles, the Jews, the Negroes, indeed for every nationality and for every grade of customers. The café is a mere room, entered from the street by a wide open door or portal. Around the inside is a low divan, on which the coffee takers sit, generally cross-

legged, drinking their coffee and smoking either tobacco or the "haisch," a compound of Indian hemp and other substances, which is intended to plunge them into delicious dreams. At the extremity of the room or shop is the charcoal furnace on which the coffee is made. The latter is generally served in tiny cups, holding about a wine-glassful, for which one sou (a halfpenny) is charged. I several times partook of this coffee, but am not prepared to pass any great encomium upon it, rather the reverse.

The "café Maure" is evidently a lounge, a club, a place of reunion for the natives. In the evening these coffee-houses are always quite crammed, and I often heard monotonous chants proceeding from them. One evening our guide, Mahmoud, a most obliging fellow, took us to a Kabyle "café" renowned for its cultivation of the muses, and especially of Terpsichore. The café was so full of Kabyles that we had some trouble to obtain seats, and the only space left was a passage about five feet wide between the divans. The musicians were two in number, one played on a tambourine, the other a species of flageolet, the music being a monotonous and not unharmonious drone. The dancers were volunteers from the audience—firstly, a young man of twenty, then an elderly man of fifty. Both danced in the same singular way, not so much by moving their feet, as by attitudinizing, bending the body first one way then the other, and making all kinds of contortions with a handkerchief held in both hands, at one time suspended over their heads, at another brought more or less rapidly over their shoulders, their arms, their bust. The feet shuffled gently at the same time in measure to the music, but so slowly that it took ten minutes to get over ten yards of space. Sometimes they assumed a semi-kneeling position. The attempt to assume graceful attitudes and to bend the body into all

kinds of elegant postures on the part of labourers and draymen was supremely grotesque. Yet it was an emblem of eastern life and eastern ways, for such I am told is dancing in the east. The accompanying woodcut of an Arab dancing girl is evidently the model my Kabyle dancers had in view. The performance over, we applauded vehemently, shook hands with the performers, and drank

DANCING GIRL.

our coffee. After fraternizing for an hour with the Kabyles, who were the very pink of politeness, we took leave of them. A little further we stopped at an Arab café where vocalization was the order of the day. Here, also, the Arabs were sitting cross-legged on a low divan, round a large room or shop opening on to the street, smoking and drinking coffee. Both the music and the songs consisted

of a monotonous chant, in which the voice rose and fell a few notes only. The sounds were not devoid of melody, and it is easy to comprehend that such a chant, with words that interest the hearers, sung under the tent in the desert by a youthful and fresh voice, would command a sympathetic and attentive audience.

The Arab schools for boys struck my fancy greatly. I went into several, and was greatly pleased to see the master, generally an old man with a white beard, sitting cross-legged, and surrounded by a swarm of pretty little black-eyed boys in eastern dress. They also sat cross-legged, with slates in their hands covered with Arabic characters, repeating with shrill voices the verses from the Koran which they were being taught. We were not admitted into the girls' schools, but I saw a very interesting assemblage of little Arab girls from six to twelve years of age in the embroidery workshop of Madame Luce, a French lady. Partly from philanthropic motives she teaches young Jewish and Arab girls the art of embroidery, and under her auspices they become apt scholars, as was evident from the numerous and lovely embroidered objects of ladies' toilette that were shown us. Many of the little girls were perfect little houris.

To one fresh from Europe, who has never seen an eastern city, there is a great charm in wandering through the old streets of Algiers. We fancy we are in the Bagdad or the Damascus of our youth, amidst the scenes of the Arabian Nights Entertainments which afforded us, once upon a time, such intense enjoyment. All the pageantry of the eastern tales rises up before us. The veiled women are the sultan's daughters, the old men in flowing robes are viziers or magicians, the young men in Arab costume are the king's sons in disguise!

On every side are evidences of a strange southern land.

One day I was riveted for an hour by the tricks of a Negro conjuror, exhibiting in an open space, and surrounded by a crowd of laughing, grinning, applauding Arabs, Kabyles, Negroes, the first row squatting on the ground, the second standing. He was a coal-black, tall, lithe, supple young fellow of three or four-and-twenty, naked to the waist, with tight-fitting drawers only reaching halfway down the thighs. Round his neck he wore a live snake some three feet long (a coluber), with which he appeared to be on the most affectionate terms. It was his principal plaything. He constantly had it in his hands, sometimes twining it round his waist, arms, or neck, and sometimes holding it by the tail and extending it full length towards the crowd as he ambled round his circle, thereby increasing its area, as all drew back in dismay. He talked incessantly, laughing, like his audience, at his own conceits, and was ever on the move. His motions were so rapid and so graceful withal, that he seemed more like a wild animal than a man. He did many wonderful things much to our delight, such as breaking huge flat stones, previously examined by us and found without flaw, by side blows of the hand. This feat he attributed clearly not to strength or knack, but to a series of most grotesque incantations delivered before the blows were struck.

One evening we went to witness the rites of a sect of Arab "dervishes," who pretend that they can, as holy men, eat and drink anything however noxious to human life with impunity. The origin of the sect is said to be as follows:—On one occasion, Mahomed, pursued by his enemies, was reduced to the last extremity, and his followers complained to him that they had nothing to eat. On this he reproached them for their want of faith, and told them that if they believed they would find that they could eat anything, stones, glass, scorpions, and derive

nourishment therefrom. They tried the experiment and found the prophet's words true, so they founded a sect to the members of which this miraculous power has ever since descended, and which still flourishes. We were shown into an Arab house in one of the back streets, the internal courtyard of which had been built over so as to constitute a large room, with wide arcades on the four sides, both on the ground floor and on the first floor. The central area was covered with carpets, and on one side was a slightly raised divan, on which four Arab Dervishes were seated cross-legged. There were many other Arabs, some forty or fifty, in other parts of the room, mostly sitting cross-legged. At a given time one of those on the divan, who seemed the chief, took up a tambourine, which he struck gently. The other three did the same, and then they all began a monotonous chant in three notes, keeping time with the tambourines. Every few minutes the tambourines were given to an attendant to warm over a charcoal fire. Gradually they increased the rapidity of the chant and music, when an old man advancing from the crowd, and kneeling down before the divan, began to chant in unison, rocking backwards and forwards. One by one several others came forward, knelt down and joined in, rocking themselves to and fro in front of the divan, and chanting like the rest.

By degrees they became more excited, their movements assumed a more rapid character, and their features a wilder and wilder expression. Then began the performance. A red-hot poker was brought, and the old man licked it round and round, over and over again, as if it had been sugar-candy. A flat spade of iron red-hot was now produced, and he repeatedly stamped upon it with naked feet, and drew it over the palms of his hands, without apparent suffering. This man then knelt and resumed

his rapid backward and forward movement, roaring aloud to the monotonous music until he fell into epileptiform convulsions, and was carried away. His neighbour next presented himself, and thin pointed skewers were run through both cheeks horizontally, and others vertically, so as to sew up his mouth. Blood and saliva poured down his cheeks whilst he recommenced his swaying motions in front of the divan, with the rest of his companions, uttering short, loud grunts or groans each second or two. A third devotee was given large pieces of glass, which he crushed audibly in his mouth with his teeth, apparently swallowing the pieces. Then there was a general distribution of the thick fleshy leaves of the Prickly-pear, covered with hard spines half an inch long. They all threw themselves on this delicate food like wild beasts, biting large pieces off the leaves, thorns and all, and crunching them with apparent delight. We were told that the best of the exhibition had to come, that they would swallow live scorpions, and do other wonderful feats, showing that they were not like other men, and could do with impunity what would destroy any one else. This our Arab interpreter Mahmoud appeared firmly to believe. But I and my friends were tired and disgusted with these howling maniacs, and departed. There must be some trick in this performance, although I failed to discover it.

There are many objects of interest to the stranger at Algiers which I have not space even to enumerate. I would make an exception in favour of the Mosques, large naked edifices with semicircular or Saracenic arches, the floor covered with Turkey carpets or mats, for the barefooted worshippers. The Museum is also well worth a careful visit. It contains many interesting Carthaginian and Roman antiquities, the latter showing what a high degree of civilization and what great importance the

Roman colonies and towns had attained during the Roman occupation of Algeria. In all they do now, both in a military and social point of view, the French are following in the steps of their Roman predecessors. As they advance south they are occupying the same military posts, colonizing the same towns, and finding that whatever they have to do had been done before them, nearly two thousand years ago, by the conquerors of the ancient world. What this wonderful people did in Gaul and in Britain they were doing at the same time in north-western Africa and in a score other regions.

No one should leave the Museum without casting a glance at a ghastly vestige of the cruelty of the Algerine pirates in former days. There was a tradition connected with one of the Algerine fortresses that above two hundred years ago a Moorish convert, who would not abjure his new religion, was buried and built up alive in one of the walls of the fortress. The French had to demolish this fortress, and truly, in the very depth of one of the walls, was found the body of the poor victim. A cast was taken, and no more than two centuries afterwards it presents as vivid as terrible an embodiment of his torture and death as does the cast at Pompeii of the death of the family overtaken by the ashes of Vesuvius eighteen centuries ago. His hands and feet are bound with cords, and he was evidently thrown horizontally into the wet mortar. His mouth is pursed up to prevent its entering.

Algiers and its strange life and scenes surveyed and analysed, my thoughts turned to the principal object of my visit, the study of climate, revealed by vegetation. As the best way of judging what the Algerine climate really is, I devoted a couple of days to the examination of the Jardin d'Essai or Experimental Garden, of which I had heard much.

This garden was commenced some twenty years ago by Government as a botanical and experimental garden. It is situated about two miles from Algiers, in the centre of the bay, beyond Mustapha Inferior. It occupies the level ground at the foot of the Sahel hill, extending quite to the sea-shore, and ascending the Sahel itself for a short distance. Within the last year, however, it has been sold to a company which is doing much for Algeria, the Compagnie Thalabot. All the plans of the Government are being continued on the system of a vast nursery or horticultural establishment, meant to pay its expenses by the sale of plants and trees. The soil is a mixture of calcareous loam with micaceous and siliceous sand. The most remarkable feature in the garden is a splendid avenue of Chamærops humilis, Latania Borbonica, and Dracæna Draco, alternating on each side for a distance of nearly half a mile. The Chamærops are at least nine or ten feet high, the Latanias and Dracænas higher still, quite trees. The effect of this wide tropical avenue of Palms is perfectly magical. They are in splendid health and beauty, although many of the leaves have been damaged by the severe weather of March. It would appear that the weather was as bad this year (1869) during March in Northern Africa as in Southern Europe—constant winds from the north, with hail, and a low temperature predominating. The Palms, I was told, had suffered unusually, but were only damaged in foliage, not in structure. There is also a fine avenue, and a small thicket of noble specimens, of the Phœnix dactylifera.

One large border devoted to hardy Palms, capable of growing with perfect health in the climate of Algeria, filled me with admiration. There I saw growing freely, luxuriantly, to the height of from ten to twenty or thirty feet, in the full perfection of health, many Palms that I

had never seen before out of Palm-houses, always excepting those I mentioned in a former chapter, as grown in the open air on the Riviera. Thus I noted the Phœnix pumila, reclinata, spinosa, leonensis; Sabal Adansoni; Chamærops humilis, Martiana, tomentosa, palmetto, excelsa, elegans, hystrix, Birrhus; Copernicia cerifera; Corypha australis; Latania Borbonica (immense); Brahea conduplicata; Thrinax speciosa, radicata, argentea; Rhaphis flabelliformis; Ceroxylum niveum; Chamædorea speciosa, lepidota, scandens, elegans; Oreodoxa regia; Cocos Datil, speciosa, botryophora, lapidea, australis, coronata; Jubæa spectabilis; Attalea speciosa; Caryota Cumingii, furfuracea, urens; Arenga saccharifera; and several others, the names of which I did not note.

There were also beautiful beds of Cycadeaceæ, Bonaparteæ, or Dasyliriæ, Dracænas, and Yuccas. Among others I may mention Dion edule, Encephalartos horridus, Caffra, Lehmanni, longifolius; Cycas Rumphii, circinatis, revoluta—all large plants, two or three feet high, Zamia fusca, latifolia; Musa Ensete, Strelitzia ovata; Dracæna indivisa, Draco, umbraculifera; Cordyline congesta, Brasiliensis, cannæfolia; Yucca aloifolia, gloriosa, Draconis, filifera, angustifolia, Parmentieri, canaliculata. All these trees and plants are remarkable for the perfection of their development, making due allowance for the winds and cold of March, which, as stated, had damaged the leaves in some cases. The Cocos botryophora, the Cocos speciosa, and the Oreodoxa regia are above thirty feet in height, although young trees—the siliceous soil evidently suiting them. The Sabal Adansoni are very fine plants, one mass of leaves, but these leaves are so torn by the wind that they have lost all claim to beauty. Even the Latania Borbonica, magnificent as it is as a tree fifteen feet high, is not so handsome as when well grown in a stove, with plenty of room to develop each leaf.

The first impression produced by the sight of these beautiful Palms, Cycadeaceæ, Zamiæ, and Bonaparteæ, was that I had landed in a truly tropical country, and I cast my eyes around to see if it was not really so. To my surprise I found on all sides the evidence of a "past winter," of a winter apparently as severe as the one we experience on the north shores of the Mediterranean, in a latitude 4° more north, but protected from north winds by the Maritime Alps. The deciduous trees, Mulberry, Fig, Plane, Pomegranate, Willow, were only just beginning to show signs of life (April 15). The Vines were throwing forth their first leaves, the flowers not yet developed. There were but few Roses out, and those principally the hardy Monthly Rose. Spring bulbs were going or gone out of flower, but the Ranunculus, the Sparaxis, and Ixia were in full and profuse bloom. I had seen orchards of the edible Banana on my way from Algiers, evidently cultivated for the fruit, but they were mere leafless stems one or two years old, torn and battered by the winter, and just showing at their extremities the first new leaf. On the other hand, there were scarcely any Orange trees or Lemon trees, either in the Jardin d'Essai or in the gardens of the country houses at Mustapha Superior, the hilly health suburb of Algiers, where are most of the country houses of the rich Algerines, and the favourite residence for invalids.

In a word, there was conclusive evidence that vegetation suffers more from the influence of winter at Algiers than in the Genoese undercliff, and that spring was not then more advanced. The only deduction I could make was that the plants enumerated were hardy enough to pass through the same amount of winter cold as that experienced on the protected Riviera, 5° more north, but that the greater heat of the summer in Algiers secures to them a more

luxuriant, more exuberant life and growth. This is more especially shown by the Banana, which grows anywhere on the Riviera, but only gives ripe fruit in very exceptionally warm corners, such as the bays between Mentone and Monaco; whereas it is evidently cultivated extensively in the vicinity of Algiers for the sale of its fruit, and that in situations fully exposed to the north winds.

These facts are easily understood when we consider the position of Algiers. Being exposed due north and north-east on the south shore of the Mediterranean, on the slopes of a crescented hill from 300 to 600 feet high (the Sahel), the north-west and north-east winds, which reign during the winter, arrive cool and loaded with moisture. They thus bring moderate cold and a moist atmosphere, the moisture of which often falls as cool rain, condensed by the hills and mountains behind Algiers. The town being north-east and north, the sun in winter, when low in the horizon, cannot shine with the same power as on the north shore of the Mediterranean, where its rays impinge directly, all day, on the undercliff. On the 20th of April, even at 12 o'clock, the fronts of the houses at Mustapha Superior were in the shade, and being situated on the north slope of a hill looking towards the beautiful bay, they are naturally built to face the sea. Moreover, as the north winds are necessarily moist from having crossed over the entire width of the Mediterranean, or having come from the Atlantic, the sky is whitish from watery vapour in the atmosphere, not so dry and blue as on the north Mediterranean shore—a condition which still more diminishes the power of the sun's rays.

After visiting the Jardin d'Essai, on one occasion, I drove a mile or two further on, ascended a favourite ravine or valley called "The Vallon Frais," passed along the summit of the Sahel, but on a road below its level, and

returned by Mustapha Superior. Wherever we found protection from the north sea winds, in hollows and valleys, vegetation at once assumed great luxuriance. Fig, Olive, and Orange trees appeared large in size and healthy in development; to disappear, however, as soon as the protection ceased.

It is certain that there is nothing like the luxuriance of winter vegetation at Algiers that is observed between Nice and San Remo. The Orange and Lemon trees cannot stand north sea winds even in latitude 36°, although they can bear south sea winds in latitude 41°; so they are absent, except in sheltered nooks and corners, where they grow well enough. Even the Olive tree does not seem to flourish when freely exposed to these north winds at Algiers. It has to seek sheltered valleys and nooks where the wind does not reach it. There is nothing like the Olive groves of Mentone to be seen at or near Algiers. Nor is it surprising, when we consider that these same north winds, loaded with moisture, bring cold rain, hoar frost, and snow to the mountain regions of the Atlas, 120 miles further south, and even to the oases of the Great Desert of Sahara, a hundred miles more to the south than the last Atlas ridges. (See *The Great Desert.* Tristram.) In the contest between "latitude" and "protection," it is clear that thorough protection from the north can hold its own against many degrees of latitude.

I do not for one moment pretend to say that the winter climate of Algiers is a cold one—the thermometer is there to prove that it is not; but the spring vegetation also proves that there is a great deal of cool winter weather and cool rain, owing to exposure to the north without any protection whatever. These cool winds and rains, notwithstanding lower latitude and greater summer heat, evidently unfit Algiers proper for the free cultivation of

some delicate plants, such as the Lemon, which require sunshine, heat, and immunity from north winds winter and summer; whereas these same plants thrive perfectly in a more northern but more protected region.

The high medium temperature of Algiers during the winter months, as given by observers, is probably owing, in a great measure, to the nights being warmer than they are on the sheltered north Mediterranean shores, such as the Genoese Riviere, where the air at night is more cooled by down draughts from the mountains that protect it from the north, the Maritime Alps.

Having thus examined the eastern suburbs of Algiers, I was desirous to see the region lying due west, so we arranged an excursion to a Trappist monastery, situated on the coast about fifteen miles west of the city.

Leaving the port and town behind, we passed through the western suburb of Algiers, called Ste. Eugenie, where there are some country villas, situated between the base of the Sahel and the sea. They are decidedly objectionable, being at the extremity of the western promontory that contributes to form the bay of Algiers, and exposed, consequently, both to the north-west and north-east winds. The road skirts cape Pescale, which terminates the promontory, and then turns in a south-westerly direction, still following the shore at the foot of the Sahel. A little further on the Sahel hill leaves the coast, or rather follows it a few miles inland. It sends, however, buttresses, ribs as it were, into the sea, which give a very jagged, irregular character to the coast, forming sheltered coves and bays, celebrated in former times as the retreat of the Algerine pirate vessels. It is here that they used to lie, ready at any moment to avail themselves of favourable winds to go to sea, and pounce on their prey. The road all but skirts the shore, passing through a plain only

partially cultivated, and still covered in a great measure with the Chamærops Palm, Cistus, and wild flowers and grasses. Here and there we came upon patches of cultivation, corn farms, Geranium farms for scents, and pastures, which, by their luxuriant crops, showed the soil to be a very fertile one.

Fifteen miles from Algiers we reached a castle surmounted promontory, Sidi Ferruch, forming a bay sheltered from the south-west, where the French army landed on the 14th of June, 1830. On the 19th of the same month was fought the battle of Staouèli, so called from an elevated plain of that name, four miles inland from the point of disembarcation, on which it took place. In this battle the Turks were totally routed, and their defeat led shortly afterwards to the surrender of Algiers by the Dey. Thirteen years later, in 1843, this plain, extending over 2200 acres of land, was given over by the French government to the monastic order of the Trappists, who at once commenced the foundation of their present establishment. After twenty-seven years' struggle with nature, they have transformed the wild Palm-covered plain of Staouèli into a garden of Eden.

Ladies are not admitted within the monastery, so those who accompanied us had to remain in the Porter's lodge, much to their chagrin. We passed through a wide portal surmounted by the following inscription :—

"If life is sad at La Trappe, death is holy and sweet."

And then entered a large courtyard, in the centre of which grows a group of magnificent Date Palms, the trunks of which are so close that they appear to come from the same root. The tents of the Dey of Algiers and of the Beys of Constantine and Oran, were raised under their shade before the battle of Staouèli. Round this courtyard,

and round a further one, are good substantial buildings, in which live the monks, 120 in number. These buildings are only remarkable by their naked simplicity. With the Trappists, everything, clothes, furniture, food, is reduced to the simplest expression compatible with life. I was much struck by the dormitory, a large room, in the centre of which, in a double row, are small numbered cabins, six feet long and five wide, quite open at the top, half open at the side, with little iron beds, one thin mattrass, and a blanket. Here they all sleep, are ill and die. Two bedsteads were turned up, and we were told their occupants had died the day before. On entering, the monks lose their names, and assume conventual names, Father Thomas, Father Philippe. When a monk dies, it is merely Father Joseph who dies. Silence is the rule of the order, the only one who is allowed to speak being the one who is told out for the day to take strangers over the premises.

The monks are divided into two sections, the spiritual fathers and the working fathers. The former, dressed in white, never work, but perform masses in the chapel day and night, one service beginning as the other ends, in order, as I was told, "that the praise of the Lord may be sung without ceasing." The working fathers are dressed in brown woollen gowns, with a rope cord at the waist, and work on the farm from morn to eve. I never saw more splendid animals, cows, oxen, mules, horses, goats, sheep, and pigs, than those reared on the farm. The farm buildings were perfect, and the fields in a splendid state of cultivation, growing Vines, fruit, and Mulberry trees, cereals, grasses, in abundance. We were told that the farming profits were very considerable, and were all consumed in charity, principally in giving food and drink to those who applied at the gate. The monks themselves only lived on

bread and vegetables, drinking water. Thus they starved in the midst of plenty. The father who gave me these details said that all postulants who presented themselves were admitted if there was a vacancy, which there generally was, and no questions were asked. If their courage failed them they were free to depart when they liked. But a small proportion of those who entered yearly remained, for, said he, they wanted faith, and mistook temporary feelings, grief, despair, disgust of the world, for a real religious vocation founded on "faith." So they soon lost courage, and the emotions that drove them into retreat calming down, they slided back into the world. Had monastic institutions always been founded and directed on these principles, had they merely inculcated self-denial and meditation, enforced labour and religious discipline, and left those who joined them free to go or to come, they would not have fallen into such general disapprobation.

We were shown the cemetery, a mere ordinary burying-place with mounds and crosses only, to show where the dead lie. The Trappists do not spend their time in digging and filling up their own graves as reported. When a brother dies his grave is dug and he is buried, that is all. The organization of this monastic order as thus explained is admirable. It affords a field for the two different types of the human mind which are everywhere to be found. The spiritualists, the followers of Plato, would naturally become spiritual fathers and pass their time in ecstatic contemplation and meditation and in religious observances, whereas the positivists, the followers of Aristotle, would as naturally take to the farm. As to myself, were I to become a Trappist, I should at once apply for the post of "gardener." It is not necessary to add that the portrait given in the engraving is that of a "spiritualist" father. He had been a Zouave soldier,

took refuge from the world at Staouèli, and died there.

This visit to the Trappist monastery vividly recalled ideas which had occupied my thoughts ever since landing, and which every day's residence in Algeria has tended to strengthen. The settlement of the French in Algeria, although undertaken and continued for political purposes

THE TRAPPIST ZOUAVE.

only, has in reality a decided missionary character. It is the first grand inroad made on the head-quarters of Mahomedan infidelism since the time of the Crusades. Nearly all the north-west coast of Africa, down to the Great Desert, has been occupied by the French nation, never to be given up again, and along with their sway, Christianity and Christian ideas of right and wrong have established

themselves over this, the most fertile region of north Africa, the great stronghold of Mahomedanism in the Middle Ages. It was from this part of Africa that the Mahomedan Arabs passed over to Europe, to overrun nearly all its southern regions. Christian Europe, eleven centuries ago, in the days of Charles Martel (battle of Tours 732), pushed back into Africa the threatening wave of infidelism, and now, after this long lapse of time, Christian Europe has permanently occupied the very country from whence the fierce Mahomedan of the early Middle Ages came. Singular it is that it should have been left to the nineteenth century to destroy this nest of Mahomedan pirates, that all the great kings and emperors of modern history should have allowed them to reign over and ravage the Mediterranean seas. It is not yet forty years since France took upon herself the glorious task of chastising and expelling the infidel pirates from their blood-stained home.

I inquired of the father who took us round, how it was that so little had been accomplished in the cultivation of the land between their establishment and Algiers, for we had seen nothing like the luxuriance of the Trappist farm. His answer was, that it was not so much from superior fertility of soil, as from constant indefatigable labour and intelligent management. The French government has made the most energetic and liberal efforts to colonize the fertile lands of Algeria, giving land, seed, tools without stint, but hitherto with very partial success. The colonists are very often men who have not succeeded in their own country for want of the very qualities necessary to make them succeed in another. They drink, or neglect their farms, or mismanage them. If a year of prosperity comes, they spend the money, and then in the year of bad crops are obliged to borrow at ruinous interest, get involved,

and have to sell at any sacrifice. Moreover, they often lose their health, even if in a healthy district, from bad and insufficient food, from bad water, from living, in the period of first settlement, months in tents under an African sun. After years of struggle, broken in constitution, overburdened with debts, they die or make way for men with a little capital, who buy them out and profit by their labours, improvidences, and misfortunes. The second generation thus begins under better auspices, has good food, which the soil now produces, lives in well-built homes, which shelter them from the heat in summer and the rain in winter, so they flourish and thrive where their predecessors sickened and died. Such is the tale I heard all over Algeria.

On the return journey we took another road at a higher level, on the Sahel, passed through several flourishing villages and well managed farms, and descended on Algiers by the heights of Bouzaréah. The view from these heights is very fine, and the valley down which the road descends to Algiers is very fresh and green. There is, however, nothing in its beauty to warrant the poetical raptures into which most tourists in Algeria break forth in describing the Bouzareah hills and ravines, unless it be the numerous dwarf Palms, Aloes, and Opuntias. Yet they are not so very beautiful when seen dust-covered on the roadside, and they are met everywhere about Algeria. On an unaccustomed eye, however, they may, and probably do produce a deep impression.

Algiers and its vicinity analysed, and time pressing, I and my travelling companions, a distinguished and brilliantly intellectual American gentleman, member of Congress for New York, and his accomplished lady, commenced preparations for the second stage of our travels: the expedition to Fort Napoleon, in the "Grande Kabyliè," at the foot

of the Jurjura Mountains. There are diligences all over Algeria, but not wishing to travel at night, and being tied by time, I applied to the head of the administration of the mails and diligences for a good carriage, with relays of horses at proper places. The plan of our journey was laid before the authorities, and the necessary measures were so judiciously taken from head-quarters, that the entire route was performed easily, comfortably, without the slightest hitch or trouble. The cost was, we considered, reasonable, although above ordinary posting rates.

PHYSICAL GEOGRAPHY AND GEOLOGY OF ALGERIA—"LA GRANDE KABYLIE"—FORT NAPOLEON.

Before beginning the narration of my travels in the interior of Algeria, I must say a few words on the topography, history, ethnology, and geology of the country and of its inhabitants, in order to facilitate the comprehension of what I saw. But I shall be very brief.

Algeria is a mere African Switzerland, as will be perceived on referring to the map at the commencement of this chapter. I have drawn it up more especially to show the physical geography of the country, the mountains, the valleys, the rivers, and the Desert. It is founded on a very good skeleton map in Dr. Armand's work, entitled "Médecine et Hygiène des Pays Chauds." Algeria is constituted by a mass of mountains on the north coast of the African continent, extending from Morocco westward, to the Pachalic of Tunis eastward, that is, from longitude 2° West to longitude 8° East, or ten degrees, equivalent to 400 miles from east to west. It is comprised between the 37th and 33rd degrees of latitude, and extends about 240 miles from the Mediterranean to the oases of the Desert, where mountains and raised plains disappear, and

where the level is often only a few feet above the ocean. Mount Atlas, which constitutes this Alpine country, instead of being formed by one range, as is generally supposed, is formed by three ranges, rather blended in the province of Constantine, but quite distinct in those of Algiers and Oran, with intervening valleys. These ranges are:—

1st. The Little Atlas, beginning with the Jurjura Mountains, which are seen from Algiers on the eastern horizon, about sixty miles distant, runs parallel to the coast, at a distance inland of from one to ten or fifteen miles, nearly as far as Mostaganem. Between this range and the Sahel hills, on the north side of which the city of Algiers is built, lies the well-known plain of the Mitidjah.

2nd. The Middle Atlas, which commences at Bougie, 120 miles east of Algiers, and extends westward into Morocco, also parallel to the coast at a distance of from forty to sixty miles from the sea. Between these two ranges lies a fertile alluvial valley, from ten to thirty miles broad, called the valley of the Cheliff, from the river of that name, which runs through it. This, the largest river in North Africa, after the Nile, takes its rise on the north slopes of the "Great Atlas," the third and most southern range, crosses the elevated plains which lie between the two inner ranges, also the Middle Atlas, and runs into the sea at Mostaganem. The alluvial soil in the Cheliff valley, in the space comprised between the Little and the Middle Atlas chains, along with the Mitidjah plain, constitute more especially the cultivable part of Algeria. It is often called "the Tell," from the Latin word "Tellus," earth.

3rd. The Great Atlas, a mountain range which extends from Tunis to Morocco, from forty to sixty miles south of the Middle Atlas. The region contained between

the two latter chains is also called the Algerine Desert, the Desert of Angad, or the region of the High Plains (Hauts Plateaux). The latter appellation is derived from the fact that the greater part, especially to the east, is occupied by plains several thousand feet above the level of the sea. The streams or torrents which carry the watershed from the southern slopes of the Middle Atlas and from the northern slopes of the Great Atlas, run into these plains, and generally finding no exit, form large "salt water" lakes and marshes in the centre called *chotts*, as rivers always do when they run into lakes without exit. The largest of these rivers, however, the Cheliff, as already stated, finds its way to the sea. It takes its rise on the northern slopes of the Great Atlas, crosses the High Plains, or the Algerine Desert, and finds a cleft in the Middle Atlas by which it reaches the Tell, the alluvial valley that bears its name.

South of this the third mountain chain of the Great Atlas, the Alpine region ceases, and the Great Desert of Sahara with its ocean of sand and its oases really begins. Biskra, one of the first oases met with, is only one hundred and sixty feet above the sea-level. The appellation Little and Great Atlas does not apply to altitude but rather to extent from east to west. Thus the Jurjura mountains, which attain an elevation of seven thousand feet, are the highest of all, and yet they are in the Little Atlas chain. I stood in the Cedar Forest, above Teniet el Hâd, on a summit of the Middle Atlas 5600 feet high by the barometer, an altitude which I believe the Great Atlas further south does not attain.

These three mountain ranges are not mathematically uniform, but describe sinuosities north and south, throw out spurs and buttresses in every direction, divide into subordinate ranges, especially in Oran, and altogether

make, as I have said, a very Switzerland of Algeria, subordinate however to the natural divisions which I have given, and which I have plainly delineated in the map. A knowledge of this, the physical geography of Algeria, throws a great light on its past history, on that of its inhabitants, and on its climate.

In describing Algiers I have given an idea of the principal race types that inhabit Algeria. I will now recapitulate them, making a few additional observations on their origin and history.

The northern part of Africa from the shores of the Atlantic to the Red Sea, and beyond, appears to have been inhabited, from the dawn of historical times, by two distinct families of the Aramæan branch of the white race, the Berbers (Kabyles and Touaregs) and the Arabs, that still exist in these countries. The Berbers have ever been mountaineers, agriculturists, attached to the soil they cultivate, living in stone-built cabins, owning flocks but not horses, for which they do not care, as not adapted to their mountain residence. The Arabs have ever been nomadic, living in tents, owning flocks which they drive from one region to another, from the plains to the lower mountains, and *vice versâ*. They attach great importance to the possession of horses, and despise towns, which they destroy and do not rebuild.

The Carthaginians, the Romans, the Vandals successively occupied the shores of Algeria and the fertile plains of the Tell, driving the original Arabs into the Great Desert, and the Berbers or Kabyles into the higher mountains, where both retained their independence. When the religious and military migration of the Arabian Arabs took place, after the death of Mahomed, in the seventh century, the Arabs of the plains, reinforced by their eastern countrymen, occupied the entire country with the ex-

ception of the higher mountains, of which the Jurjura are the centre, where the Berbers or Kabyles successfully defended themselves. They, the Arabs, reigned supreme on the shore, in the plains, and on the lower mountain range, and were the conquering race until the Turks took possession of Algiers (1516), of Tunis, and of Oran, and made their authority felt and accepted by the formerly victorious Arabs as far south as the Great Desert. Their power was destroyed in 1830 by the downfall of the Dey of Algiers, and their dominion in the three provinces of Algeria has fallen into the hands of the French. The latter, after nearly forty years occupation of the country, have established their authority more firmly than any power since the days of the Romans. Thanks to thirty years' all but incessant fighting, they have subdued the hitherto independent Berber or Kabyle mountaineers, as well as the Arabs of the Tell and the Desert, and hold the entire region comprised in the map, including the first oases of the Great Desert, Biskra, Lagouat, Tuggurt.

The Tell Arabs, owing probably to their nomadic pastoral habits and to their flying before invasion, have retained pretty nearly the type of their original race, and resemble their Arabian or Sahara countrymen. But the town Arabs and Kabyles have in a great measure lost all distinctive features from causes that are easily understood. Each successive invasion of Algeria by strangers drove many of the previous inhabitants up into the mountains, where they amalgamated with the Kabyles, intermarrying with them. Thus the Berber race has been modified by intermixture with Carthaginians, Romans, Vandals, Arabs, and even Negroes; for in all times Negroes from the southern regions of Sahara, from the Soudan and Timbuctoo, have found their way to the north African coast. In the villages of Kabylia many kinds of race type are

consequently seen, from the swarthy, olive-visaged, black-eyed Arab, to the fair-skinned, light-haired descendant of the Vandals. The race purity of the Algiers Arabs has been modified in the same way.

Previous to starting on the excursion to Kabylia and the Jurjura mountains I was anxious to make myself acquainted with the geology of Algeria, but singularly enough could find no work on the subject at Algiers. The various French guidebooks do not even allude to the geology of the country, nor do they give any account of the nature of the rocks and soils in the different regions which they describe. I was told that the only work on the subject is an expensive report of a Government commission, published in quarto, with a map issued by the School of Mines many years ago, but I could not get a copy. In the catalogues of books on Algeria, published by the booksellers in Algiers and Paris, there was no mention of even a pamphlet on Algerine geology, a very remarkable fact when we consider the bearing geological formations have on agriculture, and on the botanical aspects of a country. It would seem as if the study of, and the interest in, geology in France, even in its application to agriculture, were confined to the scientific men professionally connected with it. Neither could I find any information in any of the English works of travel in Algeria that I could get at. I was thus reduced to my own observations. On my return through Paris I discovered, not without trouble, a book written by M. L. Ville, an engineer, entitled "Recherches sur les Roches, les Eaux, et les gites mineraux des Provinces d'Oran et d'Alger," 1852, quarto. By means of this work I have been able to test my personal experience, and I have been guided by it in drawing up the following geological statement.

The mountains and plains of Algeria are formed by

igneous rocks, and by primary, secondary, and tertiary strata.

The igneous rocks are not greatly developed, and are only found as circumscribed islands in the midst of the strata they have raised. Basalt, porphyry, and quartz are thus found here and there in the provinces of Constantine, Oran, and Algiers.

Primary strata or strata of transition, schisto-micacic and schisto-granitic, are also found, but do not occupy any great extent of the country. The hill of Bouzaréah, behind Algiers, belongs to this category, as do similar formations near Bone in the Province of Constantine.

The secondary strata constitute the great mass of the Atlas, and of the minor chains and ridges. They are principally composed of schistic clays, of hard quartz sandstones, and of grey limestones of compact crystalline texture. The summits of the mountains are generally formed of quartz sandstone, or of limestone, whilst the clays occupy their flanks. They are fertile and healthy.

These various strata have been violently disturbed. Their inclination varies from 45° to 90°. Their direction is 1° E., 18° S.; the direction that characterizes the upheaving of the Pyrenees, which took place between the deposit of the cretaceous and the lower tertiary formations: 2° E., 64° N.; the direction that characterizes the upheaving of the western Alps, which took place between the deposit of the middle and the upper tertiary periods: 3° E., 16° N.; the direction that characterizes the upheaving of the principal chain of the Alps, which took place after the deposit of the upper tertiaries.

This last is the most prevalent direction in Algeria, and has given to its surface the character represented in the map, that of long chains of mountains, directed from E. 16° N., to W. 16° S., leaving between them great

longitudinal valleys, parallel to the direction of these chains, and generally filled by tertiary formations.

The various secondary formations of these provinces are so identical in their aspect and mineralogical composition, that it is natural to conclude that they belong to the same geological era. Fossils, at the same time, are so rare, that it is generally only by analogy and by mineralogical composition that their age can be determined. M. Renou, member of the "Scientific Commission," believes them all to belong to the cretaceous period.

The tertiary strata are numerous, and generally occupy the great longitudinal valleys which exist between the mountain chains constituted by secondary formations. These tertiary strata, says M. Ville, have often been carried to a great height by the geological convulsion which upraised them, as also the secondary strata which generally support them. Their characteristic feature is always to present great horizontal formations, which enables the observer to recognise them even at a distance. This horizontal character stands out in strong relief, with the abrupt precipitous elevations of the secondaries.

These tertiary formations constitute the Sahel, the plains of the Mitidjah, of the Cheliff, to within twelve miles W. of Milianah, the high table land between the Middle and Great Atlas, and also the sands and rocks of the Great Desert of Sahara.

They are formed of limestones, sands, sandstones, and clays. The tertiary rocks all contain these elements, but in different proportions; so that the physical character of the rock is determined by the proportion in which the elements are contained in it. The limestones seldom present great hardness or compactness, and always contain more or less quartz sand, which when it predominates transforms them into a quartz sandstone, combined by means of lime. When this lime disappears, dissolved by the action

of rain, the sandstones become sands. This decomposition may be observed going on in our own time in many places.

There are also to be found, as around Mostaganem, great deposits of sand which have never been agglutinated into sandstone, and which the wind blows about, forming hills and ridges. The sands of the Great Desert of Sahara, no doubt tertiary according to M. Ville, have this double origin. They are formed of non-agglutinated original sands, and by sands let loose by the decay of limestone rocks containing them. The rocks which form the mountains and ridges that limit the Great Desert to the north, and constitute the most southern elevations of the Great Atlas, are secondary, and formed of quartz sandstone, of schistic clays, and of secondary (cretaceous) limestone.

Alluvial deposits are found in the valleys along the course of the various rivers. The larger valleys, such as those of the Cheliff and of the Chiffa, present these alluvial deposits in considerable depth and extent. Thus the Cheliff works its course at the bottom of a bed the sides of which are often thirty feet in depth, entirely alluvial.

On leaving Algiers, April 20, for Fort Napoleon, we passed due east through an area of partly reclaimed and cultivated land for some miles. The bearded Wheat crops were vigorous and healthy, above two feet high, and the ear fully formed. The artificial Grasses were equally luxuriant and healthy. Then we began to rise, and came to a region where cultivation was only partial, the ground being covered with natural Grasses and plants, mingled with Dwarf Palms (Chamærops), and with patches of grain here and there, planted by the Arabs of the Mitidjah. Wherever the land was not under cultivation, the principal plants were the Palm and the Scilla maritima. The Chamærops had appeared by the roadside and between fields ever since we left Algiers, but here it occupied the

ground in dense masses, along with its friend, the maritime Squill, called by the inhabitants the Wild Ognon. Left to itself the Chamærops Palm grows in tufts, throwing out side shoots, and spreading in every direction. If these side shoots are cut off, the main stem rises to a height of from six to eight feet, but this it never does in a state of nature, always throwing out side shoots instead. This Palm covers the plain of the Mitidjah in most places, and extends high up into the mountains. Formerly it existed in the south of France, and is still found wild in dense masses, in the south-east of Spain. It is the principal obstacle to the cultivation of the Mitidjah, as it can only be extirpated at an expense of 8*l.* an acre, so deep and matted are its roots. Although an obstacle to agriculture, it is a great ornament to the landscape. The bulb of the maritime Squill (the Squill of druggists) varies from the size of the fist to that of a child's head, and it is perhaps the commonest plant in Algeria. It extends all over the country, up the highest mountains, in the driest, sandiest, hottest regions, and passing over the Atlas descends into the Desert itself, where it is nearly the last plant seen. This fact corresponds with my experience of it at Mentone, where it grows vigorously on the hottest, driest rocks. It seems equally at home in sandy mica-schistic or calcareous soil. It is not used, being considered poisonous by the inhabitants.

Rising gradually out of the plain we come to poor sandy soils, where I was reminded of the "maquis" of Corsica. Here were the Cistus or Rock Rose, the prickly Broom and the Cytisus, both in the full beauty of their yellow bloom; the Lentiscus, also in flower, the Cork Oak, the Ilex or evergreen Oak, but not the Mediterranean Heath, and rarely the Myrtle. Wherever sand, sandstone, or mica-schist appeared near the surface throughout my travels, this peculiar vegetation also appeared in full luxuriance, transforming the hill-sides, as in Corsica, into a very garden

of yellow, white, and rose blossoms. This same "maquis" covers the Estrelle Mountains, near Cannes (mica-schist), and a small sandstone tertiary ridge in the Mentone amphitheatre (S. Lucia), as well as Corsica and Sardinia, and evidently connects in a most remarkable way the vegetation of the South of Europe with that of the North of Africa. It is the peculiar vegetation of the entire Atlas range wherever the soil is formed by the break-up of primary rock, disappearing on the calcareous ranges. Its presence in wild luxuriance, and its general disappearance as soon as the nature of the soil becomes cretaceous, although climatal conditions are the same, is a remarkable illustration of the natural adaptability of plants to certain well-defined soils. Along with these plants also appeared in great profusion our garden flower, the Pheasant's Eye (Adonis) just coming into bloom. This plant is evidently a native, and, like the Silene pendula, then in full flower, is found everywhere in Algeria.

This "maquis," *broussaille* the French call it, gradually gave way to cultivation as we rose above the sea, penetrating into the lower mountain ranges. The Kabyles, who inhabit these mountains, are numerous, and a laborious agricultural race, tilling the ground with great skill and intelligence. They have only recently been subjugated by the French, and appear to have cultivated their country in this way from time immemorial. The mountain slopes and valleys, which constitute the Kabylia, are covered with much good and fertile soil. They are dotted with densely inhabited villages, and are a scene of universal luxuriance. Corn covers the slopes wherever the land admits of its being grown, and the Fig and Olive tree are seen everywhere. Sheltered from the north sea-breeze by the shore mountains or hills, both the Fig and Olive tree attain an enormous size, and are much finer than at Algiers. But the Olive is always seen on the south side

of the hills, seldom or never on the north. The fruit of the Fig is one of the principal elements of food in the south, and, in a late famine, caused by a year's drought, and by a spring invasion of locusts from the Desert, it contributed to save the Kabyles. The first crop was destroyed by the locusts, but a second crop formed and was saved. Many Mountain Ashes are also seen, both in the Kabylia mountains and all over Algeria. This tree is evidently cultivated for its shade and its timber, but grows wild in the thickets. It seems very hardy, growing with as great luxuriance in the plains as at 5000 feet high on the sides of the Atlas, and does not appear particular as to soil. The Kabyles being Mussulmans and not drinking wine, they have not planted the Vine. It succeeds, however, very well in Algeria, and is planted wherever they go by the wine-drinking French. The Kabyle villages are generally surrounded with groves of the Opuntia, or Barbary Fig, which is found, except on the higher mountains, throughout Algeria.

The streams and rivers are fringed on both sides by the Oleander, or Rose Laurel, and by the Tamarisk. The Oleander forms dense bushes, which must be very lovely when in flower. It lines, in more or less abundance, most of the mountain watercourses in the Atlas, becoming more and more luxuriant as we advance inland. The Tamarisk is its faithful companion, for they generally appear together. On the more inland streams the Tamarisk becomes quite a tree. These two plants are evidently indigenous to the country, as is our old and irrepressible friend the Blackberry, which here as elsewhere delights in all soils, in all altitudes, luxuriates in the plains at the foot of Mount Atlas, in the valleys on his side, ascends to his summit, and probably descends into the desert. I often saw it climbing over the Lentiscus and other bushes, and even entwining its branches among the prickles of the

Barbary Fig, which no other plant or climber seems audacious enough to do. This was more especially the case at Tizi-ouzou, where we stopped to dine and sleep that day. There was a perfect forest of Opuntias round the Kabyle part of the village or town. The Smilax, or Sarsaparilla, the Clematis, the Wild Vine, are common, as on the Riviera and in Corsica. I repeatedly also found the Hawthorn in wild mountain regions, where it could not have been planted, in full bloom.

The ascent from the plains which occupy the eastern shore of the Bay of Algiers is very slight until the pass of the Beni-Aïcha is reached, thirty-two miles from Algiers. Here Kabylia begins, and the imposing mass of the Jurjura mountains meets the eye. Both the Romans and the Turks had a fortress in this position, as a defence against the inroads of the mountaineers. Two rivers, the Isser and the Djema, are crossed, as also the fertile but little cultivated plains through which they run, and the road gradually ascending reaches Tizi-ouzou, an important military station, sixty miles from Algiers. We arrived at six o'clock in the afternoon, having started at eight from Algiers, and stopped an hour to lunch and change horses at the Beni-Aïcha pass. We found a tidy little hotel with clean beds, and whilst dinner was getting ready sallied forth to make our observations.

Tizi-ouzou was also, like Beni-Aïcha, a military post in the days both of the Romans and of the Turks. It was their advanced post in Kabylia, and the Turkish fort, that occupies the brow of the hill on which the village stands, was built on Roman ruins. The French army took possession of it in 1855, greatly strengthened it, and founded a military village in 1858. The fort has now all the buildings required for a garrison of a thousand men, and additional outworks protect the village so as to secure

it from a surprise. The non-military population comprises about two hundred European innkeepers, tradespeople, and colonists. In the immediate vicinity of the French settlement there is still a populous Kabyle village, which we examined with interest.

We were shown over it by a young Kabyle who volunteered his services, and found every one very civil and cordial, even the women showing but little shyness. They at first made a pretence of covering their faces with a corner of their wide sleeves, but soon gave it up laughingly, perhaps because we had ladies with us. Some of the younger women were really pretty, and looked quite graceful standing, reclining, or squatting at the entrance of their cabins (see engraving). These cabins are built of stone and mortar, the better class roofed with tiles, others thatched with canes. We went into several, and found them all erected on the same principle—the Eastern one—a courtyard inside, uncovered, into which opens the dwelling, and round which are outhouses and sheds, with no external windows. The interior was consequently very stuffy and close. Although clean, they were too badly ventilated to be healthy dwellings.

The next day we started early, and in less than four hours reached the Fort Napoleon, passing through a rolling hilly district, the luxuriant vegetation of which I have already described, and within sight of many Kabyle villages. The Kabyles being sedentary and tied to the ground by ownership, every inch is cultivated, and scarcely a weed is to be seen. This fact explains the desperate energy with which they defended themselves in past and present times. They were fighting *pro aris et focis*, for their land, their homes, their wives, and their children. Driven away, they had no resources. They had neither horses, nor camels, nor tents, or were they acquainted

KABYLE VILLAGE AND WOMEN.

with the habits of nomadic tribes. They could not take down their dwellings and fly before the enemy as the Arabs could; so they fought to conquer or die. These mountaineers gave the French more trouble than all the rest of Algeria put together, and it is only within the last ten years that they have been subjugated, and have acknowledged the French rule and authority.

Fort Napoleon, seventy-five miles from Algiers, was built in 1857 by Marshal Randon, after a successful campaign in Kabylia. It occupies the brow of a mountain at an elevation of 2700 feet, and consists of a wall with seventeen bastions surrounding an area of 6500 square feet. Within this area are all the buildings and appliances necessary for a garrison of several thousand men in case of need. It is in the centre of the richest and most populous part of Kabylia, and has effectually awed the mountaineers into submission. There have been no rebellions since its construction.

These recently subdued outlying regions of Algeria are governed by what is called the Bureau Arabe. Officers, masters of the Arab language, are entrusted with the management of certain districts with which they are expected to make themselves thoroughly acquainted. They see to the levying of the tax or tribute, principally based on the payment by the owner of a certain fixed amount for each head of cattle. They also sit as judges in all civil and criminal cases, assisted by the heads of villages, who come as a kind of jury, each in turn. We made the acquaintance of the intelligent officer who was then acting as the head of the Bureau Arabe at Fort Napoleon, and obtained much interesting information from him. The position is clearly one of great trust and power, requiring discretion, judgment, activity, and firmness. He was constantly, he said, obliged to jump into the

saddle, and to ride fifteen or twenty miles or more, to superintend in person the arrest of some criminal, or to find out fraud and deception. The Arabs and Kabyles, although most fawning and flattering in their speech to their conquerors, are full of secret animosity, have no regard whatever for truth, and think it a positive merit to deceive, in any way, both each other and their French masters. Each Kabyle village is governed by a council elected by universal suffrage yearly, and the council itself is presided by the djemma, or mayor, who is chosen by its members. All minor questions, and all subjects connected with government and discipline, are decided by this village parliament, without reference to the Bureau Arabe. But all serious matters are submitted to the latter, and any Kabyle who wishes is allowed to refer a grievance.

I was told by my informant that it is the policy of the Government to leave to the Kabyles the management of their own affairs, but to punish crime and violence wherever it shows itself in their jurisdiction, having a due regard for the feelings and even the prejudices of those who surround them. Thus, a young Kabyle wife, brutalized by her husband, had recently run away with a soldier, and the husband had applied to Fort Napoleon for assistance to catch the fugitives. This was given, and they had the night previous been found and brought back to the Fort. The wife had been restored that morning to her husband, and the soldier put in prison to be judged and punished. The wife would unquestionably, I was informed, be shot on the way home by her Kabyle husband, in accordance with their customs, but the French authorities could not protect her without interfering with the domestic rights of the conquered people. The husband had a right to his runaway wife, so she was given up to him, regardless of consequences. If a crime was committed, it would be

punished later. It would appear that most of the assassinations and crimes against the person, in this country, have their origin in jealousy and quarrels about women, as in Corsica. The Kabyles are a more moral, as well as a more domestic, race than the Arabs, and seldom have more than one wife. If a wife tells her husband that any one has insulted her, he takes his gun and shoots the supposed offender without further inquiry. This custom gives a terrible power to the women, a power no doubt often misused. The Kabyles buy their wives for so many head of cattle, or so much money. Many of the young men expatriate themselves and come to Algiers and the plain towns to work as labourers until they have acquired the necessary sum. Then they return to their village, buy a wife, and settle down for life, just as mountaineers, Swiss, Auvergnats, and others do in Europe, minus the wife-buying. We were shown by the officer of the Bureau Arabe a large government workshop where all kinds of mechanical trades are taught to Kabyle apprentices, carpentering, forging, cabinet work, blacksmith's and locksmith's work. The intention is to propagate a knowledge of these various handicrafts amongst the mountaineers, who have a natural ability for all kinds of mechanical labour. In every village there are many who follow the various mechanical trades. The Kabyles are all Mussulmen, and like the Arabs, have amongst them many Marabouts, or holy men. The quality of Marabout is a family distinction which descends from father to son, and even the female members of these sacred families are treated with marked deference. These Marabout families have, probably, all originated with some sanctified individual who did not consider celibacy to be a necessary feature of his holiness.

After resting a couple of hours at Fort Napoleon, we

returned merrily to Tizi-ouzou, in little more than half the time we had taken to ascend. There is nothing precipitous or difficult to surmount in this part of the Jurjura Mountains. The elevated peaks, still covered with snow (April 20), the precipitous heights, the dark glens, are constantly in view, giving great grandeur to the scene, but they are further on, beyond the fort, which seems to be at their base, although nearly three thousand feet high.

We again slept comfortably at Tizi-ouzou, and the next morning started betimes for the return to Algiers. At the junction of the road to Dellys, a town on the coast, we found an Arab fair, which gave us a good opportunity of studying the Arab type and Arab ways. These fairs are encouraged by the French authorities, and frequently take place at the principal stations; we repeatedly came across them in our travels. Hundreds of Arabs come from all quarters. Tents, large and small, are raised for coffee drinking, and for the sale of all kinds of eatables and of articles of daily use. Cattle, horses, mules, and oxen change hands, sheep are slaughtered and sold, and a vast amount of quiet talking seems to be going on. It is a singular sight, hundreds of swarthy, olive-faced, black-eyed Arabs, wrapped in their bournous, with turban and sandals, gravely walking about, in their own country, it is true, but subdued, conquered, civilized by the hated Giaour.

A little further on we came upon a caravan of Arabs and camels, stopping to refresh at a roadside inn. We had repeatedly met droves of from two to a dozen camels in the plains near Algiers, some heavily laden, others swinging along at a sharp trot, with the Arab driver perched high up on their backs. Nor did anything that we saw, not excepting the Palms of the Algiers Jardin d'Essai, give a more tropical and oriental hue to the country we were in.

On this occasion we got out of the carriage, mounted the camels, the latter kneeling for our ascent and descent, and tried their walk and trot. We were, however, very glad to get down again; the height from the ground is too great to be pleasant, and the motion is anything but agreeable.

That evening we were again at our comfortable quarters in Algiers, having accomplished the journey to Fort Napoleon and back, 125 kilomètres each way (150 miles in all), easily and pleasantly in three days.

The next morning I devoted to a last ramble in the old streets of Algiers, and saw the Kasbah or Dey's palace, a wretched barn-like place. We were shown a little wooden room at the top of the house, built out on the inner court, where the Dey gave to the French consul the fatal tap with a fan which led to his downfall, to the destruction of the power of the Turks in Algeria, and to the establishment of that of a European and Christian nation over a great part of the north coast of Africa. Thus it is that great things have often small beginnings.

We started that afternoon for the excursion to Teniet el Hâd and the Cedar forest, on the frontiers of the Algerine Desert, leaving Algiers with regret.

ALGIERS TO MILIANAH, TENIET EL HAAD, AND THE CEDAR FOREST.

The railroad from Algiers to Blidah turns round the eastern extremity of the Sahel hills, a few miles from the town, skirts their southern base for about fifteen miles, and then crosses the Mitidjah. The Mitidjah is the low plain comprised between the Sahel or coast hills, and the foot of the Mount Atlas range. It was the seat of exuberant fertility in the days of the Romans, but subsequent possessors allowed it to fall into a state of nature. The rainfall of the mountains which limit it to the south, pre-

leaf. The vegetation of the tributary gorge, called the Monkey Torrent from the number of monkeys that inhabit its borders, is still more luxuriant. In addition to the trees and shrubs named I found the Weeping Willow, Thuja articulata, Laurus Apollo, Celtis australis, Viburnum longifolium, Erica arborea, all freely watered by an abundant stream of crystal water rushing over the rocks, and bound in one inextricable mass by a host of climbing plants, Wild Vine, Clematis, Smilax, our friend the Blackberry, and last in order, although first in beauty, in power, and in wild luxuriance, the large-leaved African Ivy.

This ivy had grown with such vigour in these favourable conditions of heat, moisture, and shade, that his trunk was often as large as that of the tree that he embraced. In such cases he appeared to take complete possession of the tree which gave him support, to clothe every branch with thick masses of dark glistening verdure, hanging in green loops and in masses of foliage, from limb to limb, until the identity of the supporting tree was absolutely lost in the luxuriant garb of his clinging friend. Indeed, one could not but reflect that there is such a thing as being actually overpowered, smothered, by the affectionate clinging of a friend. Next in luxuriance, without any doubt, was the Blackberry, which seemed equally to revel in this lovely gorge, creating such masses of branches and foliage that they sometimes nearly choked the ravine. The African Ivy is a most valuable variety, for although thus delighting in moisture and shade, it can stand the glare of a fierce southern sun and feel comfortable. It is being extensively adopted in the gardens of the Riviera on that account. Under the shade of these shrubs and trees, and under that of the classical Acanthus, I found for the first time in Algeria banks of Lycopodium, and

quite a collection of ferns; among others Scolopendrium, Asplenium Adiantum-nigrum, A. Trichomanes, A. fontanum, and Gramitis. In the centre of this happy valley there was a small experimental Tea plantation, established two years ago by Government. The plants were alive, but did not look very flourishing. The gardener in charge, however, was satisfied with his success, and was about to put out a large number of additional plants which had been raised in frames during the winter at Blidah. As an instance of the exuberant growth of plants in this warm, sheltered, and moist valley he showed me a Eucalyptus globulus that had grown thirty feet in two years.

I and my companions, who had accompanied me from Blidah, after visiting the ravine, had a very enjoyable repast at the little inn at the entrance, *al fresco*, in a pretty arbour. We dined to the murmur of the torrent and amidst the chattering of the monkeys, who did not show themselves, however, having retired for the night. They are the same kind of monkeys that inhabit the Gibraltar rocks, and are not common even in Algeria.

The next stage was a drive of about forty miles direct west, through the Mitidjah at first, and then over two or three low spurs and ridges of the Atlas to Milianah, a rather pretty little town, situated 2700 feet above the sea, on an esplanade on the southern slope of a mountain at least as many feet higher. Here was again evidenced the advantage of protection from the north, and of exposure to the south, *vice* altitude and latitude. At Milianah, at an elevation which, even in this latitude, allows snow to lie and ice to form in winter, vegetation was more advanced, owing to the southern exposure, than at Algiers. In the public garden all kinds of Roses, the perpetual or hybrid, as well as Banksia, multiflora, monthly, and Bengal, were in full and luxuriant bloom, which was by no means the

case at Algiers. A Chromatella Rose was covered with hundreds of large blossoms, and had climbed all over a tree twenty feet high. I saw nothing like it in any part of Algeria. Various other garden flowers were equally in advance. From the terrace of this garden, looking full south, we saw on the horizon, on the other side of a plain fifteen miles across, and 1000 feet below us, the middle range of the Atlas mountains, rising in three successive tiers. Beyond the last was the great Algerine Desert, which I intended at least to look at from the summit of one of these mountains, as I had not time to explore it. Here, too, we found tolerable quarters and a cordial reception.

Early on the morning of the 25th, descending 1000 feet, we crossed the rich valley of the Cheliff, which takes its name from the river so called. As stated, this river is a singular feature in the geography of Algeria. It rises in the last chain of the Atlas, on the borders of the Desert, thus showing how high the "Hauts Plateaux" must be, passes through a cleft or gorge in the middle range, runs through the wide valley which takes its name, and finally throws itself into the Mediterranean east of Oran, after a course of 160 miles. It thus offers a circuitous funnel, or passage, by which the wind of the Desert, the south-east, or sirocco, can, and does, pass right through the mountains until it reaches the fertile plains of the provinces of Algiers and Oran. Here its scorching breath in May or June occasionally destroys in one day or night the most magnificent crops.

As we descended from Milianah on its south side we found most luxuriant cultivation—rich orchards of Almond, Pear, Cherry, Mulberry trees, as well as the usual Fig, and abundance of pure water. At first I thought it would make a good winter sanitarium; for the town is

clean, with wide streets, and the view, both north and south, enchanting; but then there is the chance of a sirocco at any time from the south, even in winter, and of rain and snow from the north. The plain is evidently a mine of agricultural wealth, as evinced by the depth of the alluvial soil, shown in the furrows made by the watercourses. The cultivated patches of cereals, numerous near Milianah, scanty as we receded, were very vigorous and healthy, in full ear. There were no trees but those recently planted along the road—Acacia and Carouba, which were doing well. After crossing the Cheliff plain, about fifteen miles in width, we began to ascend the ranges of the Middle Atlas, the road winding through deep valleys and over easy ridges. In one of these valleys we stopped at a caravansail called Anseur-el-Louza, to lunch and change horses. These caravansails are fortified stations, or farms, which are built at intervals along all the roads that lead southwards. They are military posts, as well as farms and inns for travellers, and in the days of war, now happily past, were strongly garrisoned. The buildings occupy one, two, or three sides of a large square, which is completed by a high loopholed wall. There are no windows, the only entrance being by a wide portal in the centre. Thus shelter can be given to flocks of cattle as well as to men. Even now, although peace reigns, there is a guard kept in each caravansail.

In the immediate vicinity were a number of military tents belonging to a company of soldiers, working as convicts on the road and bridge making. Many, evidently, from their fair skin and hair, were natives of the northern provinces of France. Insubordinate and troublesome soldiers in France are sent to Algeria, and there, if still unruly, are sent thus in gangs to work on the roads in the interior. I could not but pity them, although most looked

like caged hyænas. They were, probably, the scapegraces of their families, who not being able to bear social restraints at home, had taken refuge in the army, there to find, not indulgence, kindness, and concession, as heretofore, but an iron discipline to which they must bend or be themselves broken. One of these men helped me to gather some branches to put over the carriage to shade it from the sun. I asked him what he had done to be there. He answered, "I have done nothing to speak of, but they are ferocious out there"—"*ils sont feroces là bas,*" pointing to Algiers. I gave him good advice, urged him to submit, pointing out his utter helplessness before the law and his military superiors. This poor convict soldier gave utterance to a feeling which I have often thought must oppress those who have seriously infringed the laws of the land in which they live. Once found out, there is no escape but by flight; for the law is truly inexorable. And then the flight! how terrible, when every man's hand is against the culprit, when danger is everywhere. It is not surprising that many should, after a time, surrender themselves of their own accord.

We stopped more than an hour at the caravansail, and lunched under the shadow of a wild Olive tree. The shade was very agreeable, for the sun was ardent, and a wind had risen from the south since we left Milianah, blowing direct from the Desert, now very near. To our surprise we found the thermometer marking 94°, for although very hot, owing to the dryness of the air, the heat was not so oppressive as it is in England when the thermometer marks 84°. But it manifested its influence on the economy by profuse perspiration on the slightest effort, or even without. The locality was very picturesque, a small alluvial plain, growing luxuriant crops of clover and barley, with a stream of crystal water, some ten feet wide,

meandering at the bottom of the valley in a thicket of Tamarisk and Oleander. On each side were the slopes of the mountain ridges, sandstone and gravel, covered with rock Roses in flower, Maritime Pines, and Thuja. In the middle, the square fortified station, loopholed for musketry, with the white bell tents of the convict soldiers, and of their guard.

Here we sat for some time reclining on the grass, as if we had been in England, for there was grass on the shady side of the tree, and feeling intensely the strangeness of our situation, in the bosom of the Atlas Mountains, within a few miles of the great and mysterious Desert. I doubt, however, whether we were prudent in thus lying among the brushwood, for after a time, my American friend espied something moving under some twigs, and on a nearer survey, we found that it was a large scorpion. He at once seized a stone, and incontinently smashed him, whereon the ladies declared that it was time to depart. We carried enemies away with us, however, very venomous ants I believe, for I and another of the party were so severely bitten that it took weeks to efface the stigmates. We were told by our driver that this valley was so renowned for the size and number of the scorpions that inhabit it, that it is called "the valley of the scorpions."

The road continued to ascend and descend mountain ridges and spurs for some hours more, until we reached our destination at the head of the pass in the last range, Teniet-el-Hâd. The rocks and soil from the Cheliff plain to this station are everywhere sandstone, gravel, and mica-schist, and the vegetation is all but identical with that of the same soils in Corsica—Lentiscus, Arbutus, Ilex, Cork Oak, very large wild Olives, Aleppo Pine, Juniper, Genista, Cytisus, Mountain Lavender, Cistus, white and rose, Willow, Smilax, Mountain Ash, Asphodel,

Ferula, with the addition of some others which I did not observe in Corsica, although they may be there; Chamærops, Thuja articulata, Oleander and Tamarisk, fringing the rivers or torrents, and Scilla maritima. We greatly enjoyed our leisurely progress through this lovely mountain scenery, despite the glow of a southern sun, and the most oppressive heat of the sirocco. Our attention was repeatedly attracted by large grasshopper-like locusts, which flew across our path, and even into the carriage.

Teniet-el-Hâd is a fortified military outpost and station, occupied by a garrison of 3000 men—1000 cavalry, 2000 infantry—by the settlers who minister to their wants, and by a few farmers or colonists, as the French call them. I estimated it to be 4000 feet high by the barometer. It is situated on a neck or pass of the Middle Atlas, from which the road descends into the Algerine Sahara, or the Desert of Angad. The Atlas peaks in the vicinity ascend nearly 2000 feet higher. The village itself presents nothing remarkable, merely consisting of barracks, stores, a few one-storied houses, occupied by the tradesmen, and a very inferior inn. The owner is a prosperous colonist, who has a large corn farm five miles further south towards the desert, the last agricultural settlement belonging to an European. Teniet is the centre of the French military power in this region, and the support of the garrisons in the oases and of the flying columns in the Desert due south. There are similar stations all along the more southern ridges of the Atlas, such as Biskra, Boghar, Tiaret, Saïda.

A couple of miles to the west of Teniet there rises a noble mountain peak, 1600 feet high, the flanks of which are covered by a magnificent Cedar forest, much larger and finer, I am told, than that which clothes Mount Lebanon.

We determined to devote a day to the forest, and after an early breakfast started in our carriage, with some misgiving, as we were told that the road, a mere cart road for timber, was scarcely practicable to a carriage. However, we managed in about three hours to accomplish twelve miles, which brought the road to a termination in the very heart of this truly mighty forest. The road ended in a woodland amphitheatre, surrounded by magnificent Cedar trees, carpeted by a velvet turf worthy of Erin, with a small pellucid lake in the centre. Here we found a party of French officers from Teniet, enjoying a picnic breakfast, and were most hospitably received by them.

Between us and the summit, however, between us and the view of the Desert, there was still a mountain peak, 1200 feet above where we were. None of the officers, or of the workmen and timber-cutters had been up it, there was no road, and the sides of the mountain were very steep. But we were determined not to go back without seeing the desert from the top of Mount Atlas, so we bravely commenced the ascension. Even I managed to scramble up, in due course, by holding the barometer in one hand and resting five minutes every hundred feet of ascent. Although the mountain sides were clothed with successive stages of grand Cedars, we found the ascent very difficult. Once at the summit, we were amply rewarded for our trouble and fatigue; a most glorious sight was unfolded to our view. To the north were the grand old Cedars covering the mountain flanks, the two lower ridges we had crossed the day before, the plain of the Cheliff, and the high mountain on the south side of which Milianah is situated; to the south the Desert.

The Cedar trees at our feet, to the north, were most venerable and majestic, and rose in successive layers or

stages over an immense extent of the mountain side, as far as the eye could reach east and west; for they cover an area of 6000 acres. As they grow old they spread out their upper branches so as to present a regular table of verdure when seen from above. Many of these green table-like summits, formed by single trees, appeared large enough to admit of a company of soldiers bivouacking on them. Some, cut and lying on the ground, we measured, and found that they were from twenty-four feet to thirty feet in circumference, or from eight to ten feet in diameter. The forest belongs to government, and many trees are being cut down to make sleepers for the railway, a rather sacrilegious use for massive beams of Cedar wood.

The ground underneath was enamelled with flowers: Hyacinth, Narcissus, Buttercups, Roses, Daisies, Pansies; whilst the Honeysuckle and Bramble grew vigorously from cavities in old Cedars. Perhaps the seeds of these plants, the Hawthorn for instance, may have been brought by some bird of passage from the far north, for I recognised the note of birds that regularly visit the Pine woods of Surrey during the summer. Snow still filled the ravines, 200 or 300 feet from the summit, whilst the thermometer, even at Teniet, was 86° when we left. We heard the cuckoo sing, and saw many jays and ravens. There were many deciduous Oaks of considerable size, just beginning to put forth their new leaves. In a word, whilst sitting under the shade of the Cedars, and looking into the Great Desert of Sahara, we were surrounded by the vegetation of an English wood in May, and at the summit enjoyed the delightful coolness of an English spring. The soil was a deep rich leaf-mould, the result of vegetable decay for thousands of years. On passing it through my hand I most ardently wished I had an unlimited supply of it in my rocky garden at Mentone.

What Camellias, Azaleas, and Rhododendrons I could then raise!

When turning from the north we gazed south, we saw at our feet a gentle mountain slope, of about a thousand feet, covered with scrubby dwarfed Ilex, then gently undulating plains green with grass and cereals, then a green plain perfectly flat, and then, about ten miles beyond us, the real Algerine Sahara, or the Desert of the High Plains (Hauts Plateaux), a level yellow sea of sand. On the far off southern horizon, about fifty or sixty miles distant, was a low ridge of mountains, the Great Atlas, the last mountain chain, and the northern limit of the Great Desert, which extends to Soudan, to Timbuctoo, to Senegal (see Map). The abundant winter and spring rains, precipitated by old Atlas, had clothed even the high plains which form the margin of the Desert with verdure, but all tree vegetation ceased a thousand feet below where we were standing, except in the beds of torrents or rivers, or in the oases.

The rain which falls abundantly in winter on the ridges of Mount Atlas, and even on the limestone hills south of the Great Atlas in the more northern regions of the Great Desert itself, gives rise to torrents and rivers in winter which flow down the slopes of the mountains and hills, north and south, to lose themselves in the sands, or in shallow salt lakes. Often these torrents, although lost to the eye in the sands, are running their course at some distance underground, and reappear as springs, or terminate in the lakes or Schotts above mentioned. An oasis is a spot which a torrent or river irrigates, or where these springs or underground rivers appear at the surface or can be reached by wells. Nearly all surface waters, torrents, rivers, springs, even the shallow lakes, apparently disappear during the summer. I say apparently, because

water is generally to be found underground, more or less near the surface in these northern regions of the Desert, water due, no doubt, to the watershed of the Atlas. Wherever it can be thus reached all the year round vegetation becomes possible and trees flourish, especially the Date Palm, as also various fruit trees such as the Apricot, the Peach, the Pomegranate, and all kinds of vegetables.

The tree that constitutes the riches of the Desert, that thrives the best, and that more especially characterizes its sandy plains beyond the Great Atlas, for it does not grow in the Hauts Plateaux, is the Date Palm. It flourishes and ripens its fruit in the most sterile sands—in sands all but devoid of alluvial soil—if it can get water. Nor is it particular as to the kind of water; saline waters, that even the Arabs cannot drink, agreeing with it perfectly. In Algeria proper, once the city of Algiers has been left, the Palm is scarcely ever seen. It is not a feature of the landscape, as is generally supposed and stated. No doubt it would grow very well in any of the lower plains of Algeria, but I believe it does not ripen its fruit out of the Desert, the climate being too moist and cold in winter, so that there was and is but little inducement to the inhabitants to plant it. In partly civilized or colonized regions very little is done for the ornamental, and the trees and shrubs that have not a direct practical purpose to serve are seldom seen, except in a wild state. Thus, I subsequently found the Date Palm infinitely more common in the south-east of Spain as a relic of the Moorish civilization of former days than in Algeria, north of the Atlas. There must be a great difference in the winter climate of the oases of the desert and in that of even the valley of the Cheliff, the warmest valley in Algeria, for cereals are ripe and garnered in March in the oases, whereas I found them only just turning colour at the end

of April in the Cheliff plain, near Orleansville, the hottest part of the valley.

The sands of the Desert are siliceous, but contain, as we have seen, a good deal of lime, which seems to be the kind of soil that suits the Date Palm the best. Thus, the soil of the Jardin d'Essai at Algiers is composed of loam

THE DESERT—AN OASIS.

mixed with sand, formed by the break-up of granite and calcareous mica-schist, whence, no doubt, one reason why it succeeds so well with the Palm tribe, which certainly seems to prefer such soils. On the Genoese Riviera at Bordighera, where the Date Palm is more luxuriant in growth and numbers than in any region of Algeria that I have seen on the north side of the Atlas—the Algiers

Jardin d'Essai excepted—the soil is a mixture of siliceous sand and of calcareous loam, the coast rocks being calcareous. The Roya River, which comes down the valley of that name from the Col de Tende, where the mountains are granitic, has brought, in the course of ages, enough sand to form at its outlet several miles of sandy delta, or alluvium, which extends to the Bordighera Palm groves. Not that Palms will not succeed well in other soils, for they thrive in the purely calcareous soils of Nice and Mentone, but they certainly appear to grow most luxuriantly where sand is combined with lime. Such is also the case on the east coast of Spain, at Elche especially, which I shall hereafter describe, and which must be the counterpart of a Palm oasis in the Desert.

Beyond the mountain chain of the Middle Atlas on which we stood there are but few shrubs even, out of these areas of artificial irrigation. The last to disappear are the Pistacia Lentiscus and Terebinthinus, and the Jujube or Ziziphus Spina Christi. This latter plant shows itself everywhere in Algeria. In winter it is a mass of slender, naked, thorny branches, twined in and in, and lying on the ground, like dead brambles; when spring arrives, it throws out a profusion of pale green leaves, which conceal its thorns. We found it in the Mitidjah, it followed us to Mount Atlas, and we were told that, with the Squill, it was almost the last to disappear in the Desert. It is clearly the thorn of Solomon: "as the crackling of thorns under a pot, so is the laughter of fools," &c.

The descent of Mount Atlas occupied us very much less time than the ascent. We were sorry to leave the grand Cedar forest, even to return to the "Corsican maquis vegetation" on the gravel ridges around Teniet, beautiful as it is at this time of the year, with its myriads of flowers, among which predominate the profuse yellow

spikes of the Broom and Cytisus. We were told on our return that we had been imprudent to climb so far from the haunts of man, as lions, panthers, and wild boars still haunt these mountain forests, although in rapidly diminishing numbers We had been in happy ignorance of all possible danger, so merely laughed at the risks run, which gave additional zest to our view of the Desert. We were all of us, the ladies especially, most anxious to pursue our journey into the Desert, but we had not time. Moreover, with the thermometer at 86°, 4000 feet above the sea, I thought it imprudent to venture further south, so we reluctantly decided to retrace our steps.

The next morning, April 26th, I was awakened at five in the morning by the beating of drums, the blowing of bugles, and all the sounds of war. As Teniet is an outpost of the French army on the borders of the Desert, I thought it was some review or military ceremony. On rising however I heard that news had arrived in the night that an army of locusts were marching on, along the road, from the Desert, towards the pass, and that a thousand soldiers had started as soon as it was daylight to meet the enemy. It appears that the locusts, when they invade Algeria from the Desert, make for the passes through the Atlas, and if there is a road follow it, camping regularly at night. The locusts we had met on our journey, two days before, were no doubt the pioneers, the advanced guard of the main army, now in full march. The troops were to endeavour to force them back in the day by noise and with branches of trees, and at night to make deep holes in the ground, sweep them in, and bury them. I left the same day, and heard no more on the subject. But later, whilst in Spain, I learnt that the locusts succeeded in crossing the Atlas, and spread over the fertile valleys of the Cheliff, doing much damage, and destroying many of

the magnificent crops which had everywhere met my gaze; as they had done three years before. Thus the French soldiers, whom I saw going out to fight this apparently contemptible enemy, must have failed in their efforts, and have been signally defeated. They could conquer the Arabs, the Kabyles, the wild denizens of the Desert, but were conquered in their turn by an army of grasshoppers; a singular history.

The return journey to Milianah was successfully performed in a day. The sirocco had gone, the temperature had fallen to 70°, and both I and my American friends greatly enjoyed the drive. An intellectual and well-informed inquiring friend, like the one whose companionship I had, is a most valuable adjunct to the kind of journey we were making. Constant questions and debatable opinions thrown out, on both sides, sharpen the wits and enlarge the field of observation. Such communion tends to strengthen and give a form to ideas that might otherwise have remained dormant, or have been only half formulated in the mind's recesses. We again lunched at the caravansail, but this time on the hard ground, far away from scorpions and venomous ants. As we approached Milianah it appeared a most fascinating sojourn, perched up on a ledge of the mountain, a thousand feet above the plain, with a protecting screen from the north nearly two thousand feet high behind it. I cannot but think that notwithstanding the occasional breath of the Desert from the south, and an occasional fall of snow from the north, it must be a delightful winter residence. Then it could be made a centre for excursions to the Desert and to the oases that we only saw at a distance. I do not advise any very serious invalid to try it, but a person merely weary of town civilization, and slightly failing in general health, might certainly test its climate in

perfect safety. At Milianah, also, there are all the resources of a French town—good French society, and plenty to eat and drink. We had comfortable rooms, and fared very well whilst there. We had left one member of our party behind, a gentleman who did not feel well enough to venture on "the unknown" when we started. I proposed to him to winter there next season, but having been condemned to silence for three days from ignorance of the French language, he said he had had quite enough of Milianah, pretty as it is, for the rest of his life; so I must look out for some other victim.

MILIANAH TO ORAN.

The last part of Algeria that I examined was the valley of the Cheliff, from Milianah to Oran, about 150 miles from east to west. The first day we drove to Orleansville; the second to Reliziano, the point reached by the railway from Oran to Algiers; the third day we took the railway to Oran.

On leaving Milianah we again descended into the valley of the Cheliff by the road we had twice traversed, but on arriving at the river, turned to the west instead of crossing the valley as before. Here we found the railway works rapidly advancing. From Blidah, where we had left it, the rail passes the Little Atlas by a break or deep valley, emerges on the valley of the Cheliff near Milianah, and follows its course for more than two-thirds of the distance to Oran. The high road also follows the river and the wide and fertile valley through which it runs.

Soon after our departure from Milianah the geological character of the mountains changed, they became calcareous, rising on both sides of the valley in gentle sweeps 1000 or 2000 feet high, with higher ridges of the same character behind, both northwards to the sea, and south-

wards towards the Desert. The valley itself contained a bed of vegetable soil, ten, twenty, or thirty feet deep, resting on limestone or gravel. Gradually, as the geological formation changed, so did the vegetable. Nearly all the plants so common on the sandstone, gravel, and schistic soils, from the Chamærops to the Cistus, became less frequent, then sparse, and ultimately disappeared. The Jujube Thorn alone remained, and here in a lower latitude, and later in the season, it had become covered with fresh green leaves, and was quite an elegant shrub, instead of a mass of apparently dead thorns. The hill-sides ceased to grow trees, with the exception of a few small Ilex or wild Olive, sparsely scattered. The rich alluvial plain was a mere rolling prairie or steppe covered with rank herbage and with wild flowers where not cultivated; there was not a tree to be seen for miles. Along the road and near the villages were some farms, and here and there the Arabs had tilled and cultivated patches of corn. Wherever the labour of man had broken the ground most exuberant fertility had followed, and the trees he had planted near farms and small villages—Mulberry, Carouba, Acacia, Plane, Orange, Apricot, Peach—all seemed to thrive and flourish.

The puzzle to me was, and is, why does not Nature do her own planting in these rich alluvial plains, as elsewhere, as on the sandy schistic rocks? The grasses were two or three feet deep, and mingled with myriads of flowers, Corn-flowers of various kinds, Ox-eyed Daisies, Dandelions, Buttercups, Pheasant's Eye, Marigolds, Vetches, Wild Peas, Mustard, Convolvulus (major and minor), Thistles, Mallows of various sorts. These flowers were not disseminated here and there, but growing in masses, knee-deep, as if artificially planted, until their bloom coloured the ground for miles. The fields of Wheat, the bearded variety,

were turning colour, and were rendered scarlet by masses of Corn Poppy. Here, on every side, was evidence of abundant winter and spring rains, which had brought to life and fostered so much luxuriance, and which would continue to do so were cereals or grasses planted by man. But I was told, that in six weeks there would not be a blade of grass left, that all would be burnt up by the summer sun and heat, and that there was no remedy, as there was no available water in the country. That of the river is not good, and not easily attainable, for it runs in a canal or furrow often thirty feet deep, worn in the alluvial soil. The wells, although from fifty to eighty feet deep, do not always reach good water. So, for want of irrigation, the land has to be left to itself until winter rains return in November. The Government has plans for this purpose under consideration.

It is easy to understand why the sides of a limestone hill should not be clothed with timber, for the roots of trees and shrubs cannot and will not pierce chalk or limestone, as they can and will pierce sand, gravel, sandstone, or schistic shales. But it is difficult to understand why the seeds of trees dropped by birds or thrown by the wind into the crevices of good deep soil, cracked by summer heat, and well watered for months in winter, should not germinate and grow, as they do when planted by man. Yet, as in the American prairies, in Algeria we see this plain of the Cheliff, 200 miles long and from ten to thirty wide, with its deep rich loam profusely watered for six months of the year, all but entirely devoid of spontaneously grown trees or shrubs.

During these days of pleasant travel I often sat near the drivers, and obtained a great deal of valuable information from them. The Messagerie "authorities" at Algiers treated us throughout with great consideration. Not only did they provide us with a comfortable carriage, and

frequent relays of horses, but they told off their inspectors to drive us. The first called me "Milord," and on my telling him that I had no claim to such a dignified appellation, he said that he thought we must be at least "Milords," as he and his colleagues were never called upon to drive any but the Governor. We profited, however, by the error, for we generally had the very best horses the stables could afford, and flew along the roads, nearly always good, each day arriving at our destination an hour or two before the time fixed.

The horses driven were always of pure Arab breed, and showed a speed and endurance that quite surprised us. They seemed to think nothing of twenty or thirty miles at the full trot. I was told that with a light carriage they could easily do sixty or seventy miles a day. One of the inspectors said he had repeatedly driven one of the horses then in the carriage a hundred and forty miles in two days in a light gig. Every kind of European horse has been tried on the roads in Algeria, but none can stand the climate and the work, the heat of summer, the moisture, coolness, and night fogs of winter. All break down except the native Arab, which they drive exclusively. No doubt the constitution of the equine race has become modified in the course of centuries, like that of the native human tribes, so as to thrive and flourish under conditions inimical to more northern races. The country does not produce enough of these Arab horses for its own requirements, so their exportation is not encouraged.

The towns of Orleansville and Reliziano are mere military and government stations, like Blidah and Milianah. They contain well built barracks, store warehouses, hospitals, modest town halls, with accommodation for the government offices and law courts, small inns, with some one or two-storied houses for tradesmen, and a few farm

houses and cultivated farms within a mile or two of the town. The latter are occupied by colonists established on purpose to supply the wants of the adjoining population. Beyond there is little else but the wild grass and flower-covered prairie, varied, every now and then, by an Arab encampment. The inns were humble, but we everywhere found very tolerable fare, as I always have done in French territory, without having to fall back on the national Arab dish, the kouskousou. The kouskousou is composed of wheat or barley flour, moistened with water or milk, and rubbed into pellets by the hand. It is steamed two hours, flavoured with salt or sugar, and eaten with dates, raisins, or with a fowl or a piece of mutton.

What I had heard at the Trappe monastery was everywhere confirmed. Most of the colonists who accept grants of land from the government die off in a few years, from fever and dysentery and their consequences. Their small means are exhausted in clearing the land; they have often, at first, to camp out under tents, or in badly built huts, exposed to the intense heat of the day and to the moist chills of the night—according to Dr. Armand, the real cause of fever, not marsh emanations. They are badly fed, frequently drink, and often know nothing of farming. Being mostly people who have failed in life in Europe, they have the mental defects of those who do so fail—want of judgment, want of forethought, want of power to combine. Thus in a few years they disappear, and are succeeded by a higher class of farmers, men who belong to a higher social and mental grade, who have a little capital, and know how to use it. As I have already stated, they succeed and keep their health, where their predecessors failed and died.

There is an exception, however, to this sad colonizing picture. It is when men of capital and of fair mental

calibre, men who would do well at home, buy land, either first or second hand, have the means to wait until returns come, and also the means to tide over years of drought or destruction by locusts. As they have the knowledge and the prudence required for success anywhere they do succeed, and eventually make twenty or thirty per cent. of the capital invested. Thus I was told of an English gentleman, with three sisters, who bought an estate already in cultivation, with substantial healthy residential and farm buildings, near Blidah, for three or four thousand pounds a few years ago, and was reaping a golden harvest.

We came across several Arab camps in our drive through the Cheliff valley, and as we stopped and visited them, we obtained a very good idea of what Arab life in the tent really is. The engraving is an admirable representation of the real Arab tent, and of its inmates, on a fine day, when the sides are raised. Multiply this tent by many, and the camp is formed. It was in such tents, made of camel skins or camel haircloth, supported by poles, that the patriarchs of Scripture, Abraham and Isaac, lived and died.

The two sketches—that of the Kabyle village and that of the Arab tent—give the key to the native populations of Algeria, and to their history past and present. The Algerine Arabs are nomads, of the same race, and having the same habits as the Arabs of Arabia, and of the North African deserts. In winter they camp on the plains of Algeria, within certain limits for each tribe. In summer, they retire to the lower Atlas mountains; also within prescribed limits for each tribe. The Kabyles or Berbers, on the contrary, as we have seen, are stationary agriculturists. The nomad Arabs fought but fled before the enemy, carrying on a guerilla warfare. To subdue them France has had to

AN ARAB TENT.

successively conquer and take possession of the Little, Middle, and Greater Atlas ranges, of the intervening valleys, and even of the first oases of the Great Desert, that they might have no asylum to fly to. The Kabyle mountaineers, tied to the soil by their possessions and habits, had no refuge open to them, even of a temporary nature, for they are of a different race to the Arabs, and there is animosity between them. So they fought with the energy of despair until finally subdued.

It is now nearly forty years since France first put her foot in Algeria. I was then a youth in Paris, and I well recollect the enthusiasm with which the news of the occupation of Algiers was received, just before the famous days of July, which I also witnessed. Little did France then know what a Herculean task she had undertaken—what treasure and blood it would cost to establish her sway over the wild tribes of North Africa.. But the great deed has at last been accomplished, and the long years of constant war have at last ended in the conquest and pacification of the entire country, from Morocco to Tunis, from the Mediterranean to the last oases of the northern regions of the Desert. Before this was attained, however, each chain of the Atlas had to be disputed with the Arabs, mile by mile, each village of Kabylia had to be fought for with the Kabyles; and hundreds of thousands of French soldiers have perished by the sword or by disease. Now that all Algeria is under the dominion of the French nation, order and security to life and property reign everywhere. In the towns actually settled, the centres of the local government, the French code is enforced. In the outlying stations the authority of the Bureaux Arabes brings European views of justice to bear, in a more summary, but most salutary way. Nor must we forget that it is a Christian people who have done and are doing in

Algeria what we have done and are doing in other Mahommedan countries, in our Asiatic possessions. The gain is the gain of Christianity and of civilization, and all the Christian nations of Europe ought to feel that they owe a debt of gratitude to France for what she has accomplished, and to willingly help her in her great enterprise.

The prosperity of Algiers as a colony, however, is much marred by the narrow-minded commercial policy of the French nation. Their wish is to colonize Algeria, to make it support itself, instead of costing the mother country a million sterling yearly, as it now does. To effect this France ought to open the Algerine ports to all flags, making them all but free ports, levying duties only for the purpose of revenue. Instead of that, all the cumbrous duties and prohibitions of the French customhouse are in force, and heavy differential port duties are levied on foreign shipping. French colonists, as exporters, are thus placed in a great disadvantage when compared with those who cultivate the soil in the mother country, the natural market of their productions. They pay more for everything they use and consume, not produced in Algeria, and have to sell at a much less profit when they export, on account of freight, port dues, and commission expenses. Hundreds of foreign vessels are said to pass the Algerine ports, in ballast or in distress, without entering, on account of the port dues. If allowed to enter nearly free, such vessels would make a point of paying Algiers and Oran a visit to see if they could get cargo, or to refit. As it is, they pass on. As long as Algeria is thus governed, it will remain what it now is, a military colony. It is to be hoped, however, for the sake of humanity, that more enlightened counsels will eventually prevail.

Throughout this journey I never lost sight of the object

for which I was come to Algeria, viz., to study its climate as a winter sanitarium. Every observation made with reference to botany, horticulture, geology, races, local habits, was mentally scrutinized with reference to this point, and it now only remains for me to state the conclusions at which I have arrived. Previous, however, to recapitulating the data on which these conclusions are founded, I would remark that they are so consonant with the laws of physical geography, as elucidated by the labours of Captain Maury, Mr. Keith Johnston, and others, that, given the data, they could be arrived at without leaving London or Paris.

As we have seen, Algeria is a mere Switzerland, some four hundred miles from east to west, some two hundred from north to south, formed by a series of mountain ranges, the Atlas, and intervening valleys. As the highest ranges do not rise above 7000 feet (the Jurjura), there are no large glaciers as in the Alps, the Himalaya, or the Andes, to form the sources of large rivers.

To the north we have the great inland sea, the Mediterranean, about five degrees of latitude or 300 miles across; to the north-east the basin of the Mediterranean in its entire breadth; to the north-west the Atlantic Ocean; to the south the great burning Desert of Sahara, which extends over a considerable part of the African continent.

The atmosphere which lies on this immense rainless tract, or desert, becoming heated both in winter and in summer, rises into the higher atmospheric regions, and thus forms a vacuum which the cooler and heavier air of the Mediterranean and Atlantic basins rushes down to fill. The latter is thus positively "sucked in" over the summits of the mountain regions of the northern shore and of the Atlas ranges. Consequently, in Algeria the regular winds must be and are either north-west or north-east winds, and

south winds can and do only reign exceptionally. These northerly winds coming from the ocean or the sea are moist winds, and, being brought in contact with the Atlas mountains on the very shore, are at once in winter, cooled, so that they deposit their moisture in copious and frequent rain or snow over the entire Algerine or Atlas region, and right into the Desert of Sahara itself, for 250 miles or more from the sea. This takes place from October or November to April or May. In summer the very mountains themselves become so heated with a nearly tropical sun and with the breath of the Desert, that the moisture of the northerly sea winds, when they blow, is no longer precipitated, but passes over them and into space.

Thus is explained the climate of Algeria. It is a *tract* of mountains, valleys, and contained plains, abundantly watered by cool northern rain clouds on the plains and lower mountains, and by rainfall and snow on the higher elevations, during nearly six months of the year, which makes it a garden of fertility. Mr. Tristram, in his most interesting work entitled "Wanderings in the Desert," says that he often saw hoar frost in the oases a hundred miles south of the Great Atlas. Although burnt up by a blazing and all but tropical sun during the summer, its low latitude and from its proximity to the Great Desert of Sahara, owing to the rain being thus brought by north winds Algeria does not appear, by its vegetation, to possess a warmer winter climate than the protected regions of the north shore of the Mediterranean, such as the undercliff from Cannes to Leghorn. But there is more rain, more atmospheric moisture, and the nights are warmer. This latter fact is explained by the heat being more the result of latitude than it is, say at Nice and Mentone, where it is principally produced by the direct rays of the sun impinging on the land from the

south, with shelter from the north behind. At the same time the intense heat of the summer, greater than on any part of the continent of Europe, explains the greater luxuriance of some forms of vegetable life.

I can certainly state, without any reserve, that the entire country visited between the 15th and 30th of April, from the frontiers of the province of Constantine to those of Morocco, from the Mediterranean seashore to the Desert, which lay at my feet when on one of the highest summits of Mount Atlas, was clothed with the most luxuriant vegetation. The mountain sides, the valleys, the plains, were all covered with trees, shrubs, flowers, or grasses. The entire country must have been irrigated, well watered, by Nature, every few days for months; no other atmospheric condition could explain such widespread, such universal luxuriance of vegetable life.

Algeria is certainly not a dry climate either in winter or summer, except when the sirocco blows. The rainfall at Algiers is thirty-six inches disseminated over the winter months, instead of twenty-two in England, and the night dews are very heavy. This is owing to the atmosphere being constantly loaded with moisture, and to its being precipitated when the thermometer falls at night, as it does on the northern shore of the Mediterranean, although not to the same extent.

The city of Algiers is more favourably placed than any other part of Algeria, from its having the additional protection of the Sahel hill. Owing to the Atlas mountains being covered with snow in midwinter, even south winds are cold. Once the Atlas snows are melted these same south winds are still more objectionable, as they then blow from the Desert and are intensely hot.

I have so far spoken of the climate of Algeria entirely from my own observations during this spring visit, and from deductions thereon founded. On consulting the

most valuable and interesting work by Dr. Armand, which I have already quoted, I find these deductions entirely confirmed by his actual experience, which extended over many years' military service in Algiers and Algeria.

M. Armand states that the seasons cannot be divided into four, as on the continent of Europe. There are in reality only two: the winter season, or cool rainy season, beginning with November, ending with April; and the summer, or hot and dry season, beginning with May, ending with October. The mean rainfall from 1839 to 1845 at Algiers was 36 inches, 31 of which, or six-sevenths, fell in winter, and only 5, or one-seventh, in summer.

November	5	May	1¼
December	8	June	0¼
January	6	July	0
February	5	August	0¼
March	3	September	1
April	4	October	2¼
	31		5

In 1843 rain fell on 90 days, as follows:—

	Days.	Nights.		Days.	Nights.
November	10	10	May	3	1
December	5	2	June	2	0
January	10	7	July	0	0
February	9	7	August	0	0
March	9	6	September	2	0
April	1	2	October	3	1
	44	34		10	2
	78			12	

Dr. Armand gives 64° as the mean annual temperature of Algiers:—first quarter, 55°; second, 66°; third, 77°; fourth, 60°; = 64°. But these trimestrial means are very deceptive. October and March are warm, January is cold.

The atmosphere, heated by the burning breath of the sirocco, or wind from the Desert, does not usually cool down until the end of October. At that epoch or early

in November, the air cools with a westerly wind, clouds form on the sky, and such torrential rain falls, that only houses very well-built can resist them, and the smallest torrent becomes an impetuous river, inundating the plains. Whilst the plains and valleys are thus inundated by the rainfall, snow falls on the mountain zone, and remains in mid-winter down to a level of about 1600 feet above the sea. The higher summits continue white with snow from November to March, and some of the highest mountains, such as the Jurjura (7000 feet), are snow-covered for ten months of the year. We ourselves found masses of snow above Teniet el Hâd, at an elevation of 5600 ft., on the 25th of April, overlooking the Desert. Snow seldom falls on the shore, but when it does, it melts at once, as on the Genoese Riviera. Snow thus fell at Algiers in 1845, and there were both snow and ice in 1842. In the Algerine Sahara, beyond Teniet, in the high plains of the Chotts, or salt-water lakes, the cold in winter is often very severe. On the 19th of April, 1847, there were two feet of snow on these plains, and advancing troops have frequently been driven back by the inclemency of the weather.

In the retreat from Constantine the French were obliged to raise the siege and to retire, not so much from the resistance of the Arabs, as from the inclemency of the season. In January, 1846, the disasters of the campaign of Russia were reproduced on a small scale; the Sètif column, exposed to snow-storms in the mountains of Bou Taleb, was obliged to return to Sètif with 530 cases of frozen extremities, leaving on the road 208 dead soldiers (January 3).

The most frequent winds in winter are the west and north-west from the Atlantic, and the north-east from the Mediterranean; the least frequent is the south, or sirocco, itself a cold wind when the mountains are covered with snow. When the wind blows from the north-west or

west, and a feeling of coolness is experienced, rain may be predicted without consulting the thermometer. This sea-wind is so loaded with moisture that its contact with the cool mountains is sufficient to discharge the moisture in rain. During these rains the air is so moist that the wet and dry thermometers all but mark saturation.

As in England, and in every other country, there are exceptional winters occasionally, winters of unusual drought at Algiers and in the lower plains. It was so a few winters ago; and a famine was the result.

In April the rains become less frequent, the sky is less covered with clouds, the weather is warmer. May is the finest month of the year, although the sirocco sometimes blows towards the latter part, and gives rise to extreme heat.

During the six summer months the sky is of a pure blue, the light intense, and the heat very great, especially if the wind blows from the Desert, which it does for about twenty-five or thirty days, on an average, at different periods. The inhabitants of the coast are then better off than those of the interior, as the air is refreshed by the sea-breeze. The thermometer is often at 98, blood heat, and sometimes much higher. The falling of the thermometer at sunset is sufficient to produce so abundant a deposit of dew that it saturates everything whenever the wind is in a northern quarter, five months out of the six. When it blows from the Desert, the air is, on the contrary, very dry. These climatal conditions produce fevers, dysentery, ophthalmia, and other tropical diseases.

On the morning of the 30th of April we were in the railway car at Reliziano, the temporary terminus of the railway, which is to be completed to Algiers in 1870. At twelve we arrived at Oran, a clean seaport presenting a thoroughly French aspect. Here my exploration of Algeria ceased for want of time to continue it; but my object had been fulfilled.

I had satisfied myself, by the study of the spring vegetation, that winter reaches Algeria with nearly as much severity as it does the south of Europe, and that there is much more rain, a moister atmosphere, and altogether a moister climate than in the sheltered and drier parts of the south of Europe. I had learnt that 5° of S. latitude do not make up, in climate questions, for want of protection from north winds, which every winter crown the ridges of Mount Atlas with snow, and bring cold and even frost far into the very Desert of Sahara.

Algiers, and the lower Algerine plains, therefore, must be classed among the moist mild winter climates. Algiers is milder than Pau, Biarritz, Arcachon, or Ajaccio, not so mild as Madeira, and probably about as mild as Palermo, judging from winter vegetation. It is not a dry, mild climate, as has been erroneously stated, and cannot be rationally classed with the Genoese undercliff or the east coast of Spain, which are essentially dry and mild in winter.

Algeria is not, consequently, a climate I should recommend for the ordinary forms of pulmonary consumption, for the ordinary forms of chronic bronchitis, or of bronchitic asthma. In some exceptional forms of chronic chest disease, and in other morbid conditions in which a moist, mild climate is required, it is no doubt applicable, as are those which I have enumerated and described.

For persons who are not very ill, and principally require change of scene combined with mild winter weather, Algiers is, no doubt, a most enjoyable and attractive residence. It combines all the comforts and resources of a large European town with the strangeness and orientalism of Africa. As such I think it destined to become a great centre of winter emigration from Europe; but consumptive people can do better nearer home, and had better not go there.

CHAPTER XV.

SPAIN.

CARTHAGENA—MURCIA—ELCHE—ALICANTE—VALENCIA—CORDOVA—SEVILLE—MALAGA—GRANADA—MADRID—VALLADOLID—BURGOS.

. . . . "And be there joined
Patience and temperance with this high reserve,
Honour that knows the path and will not swerve,
Affections, which, if put to proof, are kind,
And piety towards God. Such men of old
Were England's native growth, and throughout Spain,
Thanks to high God, FORESTS OF SUCH REMAIN.
Then, for that country, let our hopes be bold,
For matched with these shall Policy prove vain,
Her arts, her strength, her iron, and her gold."

WORDSWORTH, *Sonnet* XXVIII.

CARTHAGENA.

WE left Oran on the 30th of April, at 5 P.M., and reached Carthagena the following morning, in fifteen hours. The passage was rough, owing to a strong west or north-west wind from the Atlantic, which was hurrying south to fill the vacuum caused by heat over the Desert of Sahara, sucked in by that great natural furnace. This wind was carrying with it dark rain-loaded clouds to water and fertilize Algeria. The captain told us that the wind would lull, and the sea become calm, when we got within fifty miles of the coast of Spain, owing to the shelter of Cape de Gata. Whether we really did get under the shelter of this cape, or whether it was, as I suspect, that the African Desert pulled the wind down south, out of our way, I cannot say, but the captain's words proved true.

12°
Cabo Ortegal
Coruña
Oviedo
Cabo de Finisterra
Santiago
42°
Bragança
Oporto
Coimbra
Sª de Estrella
Caceres
LISBOA
Evora
Badajoz
38°
Cº de Espichel
Sª de Caldeiro
Huelva
Cº de Sº Vicente
Cadix
Xerez
Cº Trafalgar
Estrecho de
Tanger
OCEANO
ATLANTICO
12°
8°
Gravé par Erhard 12, r Dugueay-Trouin. Paris.
Kilomètres
0
50
100

had some hours of calm and comfort before we reached coast, and were able to scan its rocky shores from afar. There was all but a calm when we entered the magnificent port of Carthagena, the Plymouth of Spain.

On looking round at the high limestone rocks and mountains which form the coast line, and surround the port, I rubbed my eyes with astonishment. Not a shrub, not a blade of grass, not a vestige of vegetable life of any kind or description was there to be seen on the cliffs, or on the shore inland. Scorched, browned by the sun, the rocky coast might have come that very day out of Pluto's laboratory. I was subsequently told by the French Consul that it seldom rained at Carthagena, and that they had then been eight months without any rain at all, that is, during one of the rainiest winters on record in Europe generally, as well as in the north of Africa. I took a walk on the ramparts, and in the vicinity of the town, but found no more vegetation than on a brick kiln, with one exception, a small herbaceous plant, from six to twelve inches in height, with green fleshy leaves, which grew sparsely here and there, and of which no one knew the name. I saw nothing in this sunburnt, dirty, miserable town to deserve attention, with the exception of the port, the fortifications, and a grand old tower built by the Carthaginians some two thousand years ago. The Spanish Government, Vandal like, is at present levelling to the ground this curious remnant of antiquity, to make way for some improvements. Owing to the existence of a deep and safe port, one of the very best in the Mediterranean, Carthagena has always been an important military station, and was the principal military and commercial port in the flourishing days of Spanish colonization. The principal riches of this district, now-a-days, are valuable lead and silver mines, worked by the Carthaginians in former times.

Having seen quite enough of Carthagena in the course of the day, we started that evening for Murcia, described in books of travel as an Eden of fertility and beauty.

The railroad at once entered upon a plain gradually rising to the north, the aspect of which was peculiar. It was carefully ploughed and furrowed, but not the vestige of any crop was there to be seen—nothing but the naked earth. On inquiry, I learnt that the land had been fully prepared and seed sown, but that as no rain had fallen since last September, the seed sown had never come up. Such a scene must be witnessed to be believed—thirty miles of ploughed land without a blade of grass on it, for want of moisture. This I was told was the case two years out of three; all hope of harvest for this year was *lost;* even if rain came it would now be too late, the sun had become too powerful, and would burn up the grain were it to germinate. As it was nearly ripe in other regions, this can be easily understood. There was not, however, an entire absence of vegetable life, as at and near Carthagena, for the plain was sparsely dotted with Fig, Olive, Carouba, Almond, Mulberry, and Pomegranate trees, the latter in flower. They were all small, and miserable in their leaf development, owing to the drought and to the poverty of the soil—a mere calcareous rubble, varied by apparently stiff clays.

In this arid desert, the like of which I never witnessed in Algeria, I repeatedly saw tufts of the Chamærops humilis, which established its right of domicile in south-eastern Europe. I also met with it later, between Murcia and Alicante, and in dense masses in the Andalusian valleys. Near the rare houses or farms were clumps of Opuntia or Barbary Fig in flower. The species grown is the one without spines, or with soft spines, which the cattle can eat. Otherwise, there was no scrub nor "maquis,"

no brushwood, no grasses, nothing for mile after mile but plains carefully ploughed and sown by the labour of man; all to no avail. On each side of the wide plain rose limestone mountains, presenting basaltic flaws here and there, and diminishing in height as the railroad gradually ascended. At about 1800 feet above the sea, some thirty miles from the shore, where the desolation had become, if possible, fiercer—for even the Carouba and Olive trees had given in—the line turned to the west, and passed through a kind of gorge, to descend into the plain of Murcia.

The plain of Murcia is alluvial, in the form of a delta, between two ranges of limestone mountains, some 2000 or 3000 feet high, and is rendered fertile by the presence of a small river, and by a system of irrigation which dates from the time of the Moors, and transforms a barren wilderness into a perfect garden. The mountain side continued to present exactly the same features of barren desolation as near Carthagena, until a level was attained which enabled the water to be used, and then the transformation was magical. By the means of canals of deviation taken at a higher level in the valley, a very considerable extent of the sloping ground even is brought under the beneficial influence of water, and at once smiles with fertility. From the barometer, I should say that the irrigation begins about 1000 feet above the sea-level. Instantly, the naked, barren, furrowed fields give place to Wheat crops, which increase in luxuriance as we descend. As the red ferruginous lime soil becomes deeper and richer in humus produced by centuries of previous cultivation and vegetation, the Caroubas, the Olives, the Fig trees become larger—more flourishing; the Vines, up to then, mere dry gnarled roots, rising one foot from the ground, show leaves; Mulberry trees make their appearance, then Pomegranates in flower, also Date Palms in

considerable numbers, in groups of two, three, or more, principally near the farms.

When the level plain was reached, a couple of miles from the town of Murcia, the luxuriance of vegetation was extreme. Caroubas, Opuntias, and Olives all but disappeared, the land had become too valuable for them. Fig trees had become large forest trees, many feet in diameter; the Mulberry was planted thickly along the side of the road and around the fields, whilst the ground was principally occupied by dense luxuriant crops of Wheat, three feet high, just turning colour, with here and there patches of Flax, Beans, Peas, and more Palms from twenty to seventy or eighty feet high. This luxuriant vegetation owed its existence entirely to irrigation, for here, as at Carthagena, I was told that it had not rained for six or eight months; but an entire river had been diverted from its course and used up. Every plot of cultivated ground was surrounded by an irrigation ditch, every field by a raised earth bank, some ten inches high, and by this means there was the power of throwing water over every foot of this artificially fertile region. The river itself rising in the mountains of the interior, where plenty of rain falls, the supply of water is never wanting, however great and continuous may be the drought, even if it lasts for years.

Thus, the fertile plain of Murcia is independent of the seasons. With a never-failing supply of sunshine, heat, and water, it has been, from the time of the Moors, who first established the system of irrigation, a mere market garden, like those at Battersea, and cultivated in the same way, one crop succeeding another in rapid succession. As a result of this profuse production of the necessaries of life in a southern climate—oil, wine, bread, dates, vegetables, fruits—a large town has grown up in the midst of it, the town of Murcia with its 45,000 inhabitants, living

and fattening on Nature's bounty. From the cathedral tower is seen clearly the immense delta, with its base on the sea, enclosed between two limestone mountain ranges, entirely covered with the vegetation I have described, and dotted with groups of tall Palms, which give a very oriental appearance to the scenery.

MURCIA.

On rising the morning after our arrival at Murcia, and leaving the hotel, to look about us, we found out that we really were in Spain, in the country of the Barber of Seville, of Count Almaviva, of Don Basilio. Everything was Spanish. The women had mantillas and fans, and the men really wore the elegant fantastical costumes we see represented on the stage and in books. The streets were narrow, the houses low, the windows protected with iron screens, bulging out from the window-sill. The beggars were picturesque and importunate. The churches were numerous and imposing, towering over the town and dwarfing all other buildings, just as the Church of the Inquisition, for centuries, towered over and dwarfed free judgment and social life in Spain.

It was Sunday, and the entire population was out of doors in holiday costume, which gave us a good opportunity of studying costume and race. The lower orders, and the lower middle classes had clearly a deal of Arab or Moorish blood in their veins. Their complexions were swarthy, olive coloured, and their eyes and hair generally coal black. The women did not strike me as particularly lovely, but they had a fire, an animation about their speech and movements that we seldom see in northern climes. Many of the higher class women seemed to belong to a different race, for they were fair skinned, and had brown, even light hair. This difference of race characteristics

was still more marked further north, at Valencia and Madrid. No doubt these light-complexioned Spaniards are the lineal descendants of the northern races that long held Spain in subjection, the Goths and Vandals of early history.

Whilst at Murcia there was a "Bull-fight," so, as in duty bound, we all went to witness the performance. It was the first exhibition of the kind that I had seen, and will be the last that I shall ever see. I was not so much struck with the cruelty of the entire proceeding, although that is very great, as with the treachery and barbarity shown to the brave bull. The one that I saw fought like a Trojan of old, splendidly, magnificently, refusing no enemy, no encounter. He turned over the Picadors like men of straw, ripped up the horses, and drove all before him like chaff. Then, at last, out of breath, tired with his vain efforts to get at his enemies, he went to the gate by which he had entered, and bellowed to be let out. He seemed to say, "I have had enough of this contemptible folly, let me out." He was allowed to depart for a few minutes, whilst the dead horses were drawn away, and the amphitheatre was put in order. Then the portal was opened, and the same bull bounded into the arena perfectly furious, bellowing and tossing the sand at his feet. He seemed to have thought better of it, and to be determined that this time he really would make mincemeat of his enemies; he was clearly much more dangerous. Within five minutes he all but pinned one of his tormentors to the wooden balustrade, making the building resound with the shock, and tearing off one of his horns. The man was clearly hurt, for although he contrived to jump over the balustrade, and to quietly walk away, putting a good face on it, he soon disappeared, and was seen no more. By this time my sympathies were thoroughly enlisted on the bull's side. I mentally ap-

TICKET OFFICE FOR THE BULL FIGHT.

plauded him, saying with the Spanish audience "Bravo Toro," and applying to the injured Toreador the Yorkshire jury's verdict, "Served him right." Then to my indignation, as if in revenge for his noble defence, a dozen large bulldogs were let loose on the brave animal. They instantly fastened on him, one on each ear, one on the tail, two on the neck, and one on his muzzle. The poor brute had a perfect chaplet of these bloodthirsty dogs hanging on him like leeches. He was quite powerless to get rid of them, and kept careering madly round the amphitheatre, bellowing piteously all the while. This was no longer fair fighting, but a brutal persecution of a noble beast. When he was all but exhausted, he stood still, quivering in the arena, and the masters of the dogs came forward and pulled them away.

Freed from his tormentors, his lips torn to shreds, the place of his lost horn marked by a gory gash, blood streaming from his lacerated ears, neck, sides, and tail, he was still game, bellowed defiance lustily, and turned round once more on his enemies. I thought of Byron's lines, for even then, after so brave a fight, there was to be no mercy for him, he had not gained his life by so valiantly defending it.

> "Foil'd, bleeding, furious to the last,
> Full in the centre stands the bull at bay,
> 'Mid wounds, and clinging darts and lances brast,
> And foes disabled in the brutal fray.
> And now the matadores around him play,
> Shake the red cloak and poise the ready brand,
> Once more through all he bursts his thundering way.
> Vain rage! the mantle quits the conynge hand,
> Wraps his fierce eye—'tis past—he sinks upon the sand!"
>
> BYRON. *Childe Harold.*

And so sank my fierce, brave bull. I mourned over him, and left, although the clarion announced other fights. But I was myself becoming bloodthirsty, and felt, that

had the bull pinned one of his tormentors to the earth, as he pinned the horses, the sufferer would have had but scant commiseration from me; so I thought it well to depart. It is truly a barbarous scene. It would have a redeeming feature if the bull could save his life by his bravery, but no, he is always butchered, however brilliantly he may fight. He may always say, as did the Roman Gladiator of old, when defiling before the Roman emperor, "Moriturus te salutat, imperator." "A man about to die salutes thee, O emperor."

Whilst at Murcia I went to see the summer residence of Lord Howden, formerly our ambassador at Madrid. Some twelve years ago he bought a plot of this rich land, about a mile from the town, built a house, and made a garden. The latter is very interesting as an evidence of the rapidity of growth in such a climate, with rich earth and water *ad libitum*. If what his bailiff told me be correct, the Date Palm planted under such conditions is by no means a slow growing tree, as usually stated. Palms only six years old from the seed were five feet in the stem, whilst others, twelve years old, were twelve or fifteen feet; quite young trees. They are planted in profusion, but nearly always in beds or ditches, sunk two feet below the level, so as to admit of water being turned in, and of their being thus literally drenched. This, I was told, was repeatedly done during the summer or growing time. In the garden (May 1st) there was a profusion of monthly Roses, multiflora, Bengal, Banksia, and Centifolia, very few hybrids: also Hollyhock, Delphinium, Poppy, white Lily, yellow Jasminum revolutum, Petunia, Carnation, Pink, Stock, with Bignonia jasminoides and Passion Flowers, as climbers.

In the public garden at Murcia I found the same flowers; that is, with the exception of the two last named,

our early summer flowers. I was rather surprised to see in a large conservatory at Lord Howden's, plants in pots, which I should have thought would have done well out of doors—Pelargoniums, Lantanas, Latania Borbonica, Abutilons, Heliotropes—a fact which seemed to imply cold nights and some frost in winter. With all its luxuriance this valley must then have a very winterly look, when the Mulberry, Fig, Pomegranate, Almond, and Vine are all devoid of leaves. The Orange trees are numerous in the district, but they are generally planted in orchards and not as ornamental trees. Moreover, they are treated in a manner which much diminishes their beauty. When young the stem is cut near the ground, and the numerous shoots which spring up are preserved, so that the tree grows up as a bush and remains so. It is graceful enough as an evergreen bush, ten or fifteen feet high, but loses all the dignity and beauty of the Orange tree when fully developed, as on the Genoese Riviera or at Blidah in Algeria.

I had left Carthagena with a shudder at the very idea of being condemned to remain there, not the winter, but even a week or two, although, I have no doubt, that the climate is exceptionally mild, dry, and healthy in winter. But who could remain for months in a filthy, dirty, dusty, sunburnt Spanish seaport, a kind of southern Wapping? Then there is no accommodation, and probably no food fit to eat. The Inn we stopped at was wretched, in a narrow close street, without comforts or any one redeeming point. Thus Carthagena is altogether out of the question as a health resort.

With Murcia I was more agreeably impressed. The hotel, although very second rate, was large and more commodious, and the fare was better. I have no doubt that life might be arranged with tolerable comfort; but then this hotel, the only one, is situated in the centre of the

Spanish town, in a narrow street, from which effluvias, anything but aromatic, constantly ascended to my windows. I have no doubt, from what I saw, that the winter climate is pleasant and healthy, dry, sunny, and mild, but I presume not sunnier, or milder than is the Genoese Riviera, perhaps not as much so. If such is the case, why descend to the most southern extremity of Europe, in the most south-east corner of Spain, merely to find what can be found within a twenty-four hours' journey of Paris? In definitive, my mental conclusion was, that if Lord Walden were to kindly offer me, and my friends, his pretty, well built, cheerful, airy villa, on the outskirts of the town, I might be tempted to try Murcia, were I still in search of winter quarters; not otherwise. Even then I should have a qualm; I should ask myself whether the very extensive and perfect irrigation of his flower garden and Palm trees, and of the market gardens and Palm trees of his neighbours, may not produce ague, fever, malaria, as it does in the oases of the Desert of Sahara, and that even in mid-winter.

PHYSICAL GEOGRAPHY AND GEOLOGY OF SPAIN—MURCIA TO ELCHE AND ALICANTE.

In order to understand the climates and the very varied vegetation of Spain, the examination of which was the special object of my visit, we must bear in mind the principal geographical and geological features of the country. I will therefore briefly recapitulate them before we proceed on our journey to Alicante.

The peninsula of Spain is a mountain plain or tableland, raised from two to three thousand feet above its own coasts and above the sea. This tableland is itself divided into parallel sections, from east to west, by a series of

high mountain ranges, the principal of which are the Sierra Guadarrama, the Sierra Toledo, the Sierra Morena, the Sierra Nevada. Between these mountain chains are the great central raised plains of Spain, more than two thousand feet above the sea-level, and formerly the bottoms or beds of seas and estuaries, or of freshwater lakes. In these plains run all the large rivers, all of which empty themselves into the Atlantic with the exception of the Ebro. Their course is parallel to the mountain chains. Below this tableland is the coast, sometimes a mere ledge or undercliff, but oftener presenting small alluvial plains of greater or less width, watered by the rivers that descend from the higher regions. It will be at once understood that such a country must present two totally different climates; the climate of the coast or sea-level, that of the latitude in which Spain is situated, and the climate of the central raised plains and mountains. The latter must be, and is, from its great altitude, a much colder climate than that of the coast.

The main features of the geology of Spain are very simple and easily retained. The mountain chains enumerated, are primary, and form the basis of the geology of Spain. They emerged before the secondary period, before the secondary formations which surround them. The Guadarrama chain is formed of granite, gneiss and crystalline schists; the Toledo chain of granite; the Morena chain of slates, psammites, quartzites, and sandstone; the Nevada chain, S.E. of Granada, of masses of crystalline schists with numerous garnets.

The secondary rocks are represented by the Trias triple, which extends from the Pyrenees to the provinces of Asturias and Santander, and also by the Jurassic and cretaceous formations, which occupy a vast area in the eastern and southern regions of Spain, forming to the

east mountains many thousand feet high, which constitute the separation between the eastern and western watershed, and penetrate into the heart of the country along the Guadarrama.

The tertiary formations are represented by nummulitic rocks or older tertiaries, always contorted, as at Santander and at Malaga, and by miocene or younger tertiary beds or deposits, both marine and freshwater. These younger tertiaries occupy very extensive areas, principally the plains and valleys of the great rivers, the Ebro, Douro, Tagus, Guadiana, and Guadalquivir, which, as already stated, were formerly seas, estuaries, or freshwater lakes. In some regions the miocene and pliocene deposits reach an elevation of 2500 feet, which shows how greatly the peninsula of Spain must have been raised in comparatively recent geological times. Many, both of the freshwater and marine fossil shells belong to species still living.

For the above geological details, in so far as they corroborate and extend my own observations, I am indebted to Ford's valuable "Handbook for Spain." I did not bring the work with me, expecting to find it at the first Spanish port, but could not obtain a copy until I reached Madrid; a hint to other travellers. I would remark also, as a proof of the scientific apathy of the Spaniards, that I failed to obtain, either at Valencia, the seat of an important university, or at Madrid, the capital, a geological map of Spain or any work on its geology. I was told by all the booksellers to whom I applied, that no such map or work existed, unless in a French or English form, and that as there was no demand whatever for such maps or works, they did not keep them. The booksellers' shops throughout Spain are few and far between, and miserably supplied. They appear to contain little else but elementary educational works, translations of French novels, and religious books.

Wishing to see the Palm groves of Elche, and the country between Murcia and Alicante, we chartered a kind of light omnibus, drawn by four mules, and started at eight o'clock in the morning. We were to remain two hours at Elche, and to reach Alicante by six o'clock, the state of the road permitting. The road to Alicante, a seaport about forty miles distant, passes in a north-easterly direction over a spur of the secondary limestone mountain that bounds and forms to the north the vale of Murcia. It again falls into the latter at Orihuela, about twelve miles from Murcia. As soon as we had ascended out of the reach of irrigation, desolation reappeared; thousands of acres of ploughed land, without a blade of grain or grass, without a weed, and vegetation reduced to small stunted Olive, Fig, and Carouba trees, especially the latter. At the same time, groves, thickets of Opuntias showed themselves, all in flower. Men eat the insipid fruit, cattle the leaves, so some good is got out of them; and they seem all but able to grow out of a burning rock; they clearly like the lime soil. On descending again into the vale of Murcia at Orihuela, as soon as water is reached, the same magical change as before is witnessed.

The first well is indicated by a house, some vegetation around, and two, three, or more Palm trees; for, as in the African Desert, the Palm tree means water, a well, or a running stream, more surely than does the Lombardy Poplar in Continental Europe. When steady irrigation commences the same exuberant fertility appears as near Murcia, Wheat here turning yellow,—Beans, Peas, Flax, large Mulberry, Olive, Carouba, Almond, Apricot trees, with Vines and Pomegranates. I never before saw such Apricot trees, as large as fifty year old Oaks, and spreading like Oaks. The fruit was beginning to ripen, but is

inferior, as is the fruit of most trees grown in the open fields on the Continent. But the peculiar feature of Orihuela is the Palms. They here appeared in orchards, in groves, in thickets of fifty, a hundred, or more acres, from ten to a hundred feet high, exactly like the Palms in India, as one of my companions, an Indian officer, stated.

The explanation of their presence, in such multitudes, in this district is that from Carthagena to Alicante, owing to the intense heat of the summer, and to the paucity of rain in winter, they ripen their fruit, which consequently becomes an important object of trade. The Dates are the large, fleshy species, not the soft sweet sort encrusted with sugar. In Africa the two kinds are grown, the sweet soft ones being the most valuable. They are largely consumed by the Spaniards, as evidenced by the fact that I found them in large quantities in every market that I visited. Orihuela is a dense hive of human beings, 19,000 strong, all subsisting on the bounty of Nature thus helped by man, and in a great measure on the produce of the Palm dates. I remarked throughout this region basaltic rocks cropping out of the limestone mountains, and it is probable that their presence gives another element to the limestone soil, and one that suits the constitution of the Date Palm, as I have previously stated. Rather severe earthquakes are occasionally felt here.

On rising out of the happy valley, in our track across this rainless country, we once again emerged on calcareous plains, sunburnt, and all but devoid of vegetable life. They would have been entirely so had it not been for the Carouba, Olive, and Fig, which once more, although stunted, manage to live through all these difficulties. These trees possess roots that have the power of travelling nearly any distance, or dipping down nearly any depth in search of food and water. They are, as my Mentone

gardener calls them, "robbers," and I have had to extirpate the Fig entirely, for wherever I made a rich border, there I found his roots at the end of a year or two. This explains their power of resistance to drought, coupled with a constitution suited to intense heat and to long-continued vegetative rests or sleeps during hot dry weather. But although they can thus live on for a year or more, all but without water, merely moistened by the dew of heaven, they do not produce fruit, or at least eatable fruit, under such adverse circumstances. It made me quite sad to see so much labour and seed wasted, an entire country cleaned, ploughed, and sown, and not even a crop of weeds to dig in for the next season. On one occasion I left the carriage and walked over twenty or thirty acres of the ploughed land, and only found half-a-dozen herbaceous Euphorbias, some three or four inches high; two or three small Thistles, and a small Convolvulus flower, at the bottom of a ditch. The calcareous mountain ridges to the north-west, which we skirted, were more bare than the white cliffs of Dover in their most precipitous part. Truly did they seem the bare bones of the earth piercing its skin.

After a progress of some twenty miles through this cultivated wilderness, we came to another valley, and then burst on our astonished eyes an oasis of the African desert, such as we had wished to see in Africa, but had not seen —a forest of tropical Date Palms, extending over a vast region, many miles in circumference, and surrounding the famed village or town of Elche. The river bed was crossed by a good bridge, but in it there was no river. It had been taken up bodily by the inhabitants, and distributed in canals to their friends and bread givers the Palms. I remained here several hours, and walked miles in the Palm forest, the like of which my Indian companion had never seen in the tropics. There were canals full of water

and all kinds of odds and ends. It was evidently the kitchen, parlour, and hall, as well as washhouse, store, and lumber room, and a very pleasant cavern house it seemed in the heat even of early May. Behind was a yard, and behind that a roomy stable, with standing for a hundred horses, or rather mules, the animal generally used on account of its hardihood and sobriety.

Between Elche and Alicante I found the same cultivated barrenness, the same brown naked fields, dotted with a few stunted Caroubas, Olives, and Figs, and even on arriving at Alicante the desolation of thirst did not cease.

ALICANTE.

Alicante has a good port, in a good bay, which brings commerce, but it has no valley, no river, only one good spring, which never dries up, and does not even much diminish in years of drought. This spring, situated about a mile from the town, is, I was told, really a fountain of life for Alicante, inasmuch as it supplies the thirst and "occasional" ablutions of a town of 31,500 inhabitants, with the assistance of an immense rain-water tank used for retaining rain when it does fall. The town itself after this winter's drought was like Carthagena, a mere crater to a volcano, without vegetation, with the exception of a few stunted Acacias, Caroubas, and other trees with sparse foliage, planted along the sides of the main road, each in a deep circular bricked hole some four feet in diameter, for irrigation. There was an attempt at a garden in a square on one side of the town, where Monthly and Bengal Roses, Poppies, Antirrhinums, Delphiniums, and Thalaspias, with Virginian Stock, formed the flower-beds, without a trace of winter gardening. From the castle rock we saw one green spot in the town, the garden of the

governor, who evidently gets the lion's share of the water. The coast is rocky, and the sea and bay are picturesque.

The town itself is open, not surrounded by walls, and the principal streets near the port are wide and clean. It lies at the south-eastern base of a rock 400 feet high, on which is perched the castle, which thus completely commands the city. There is a large hotel, the "Fonda del Vapor," with an obliging host, at which we were made quite comfortable. This hotel occupies an extensive building, formerly a custom house. It is opposite the port, an objection, as the ways of the labourers of a southern seaport are not always pleasant to witness.

The town is so dusty, so sunburnt, so arid, so dried up, so devoid of vegetation, and consequently so desolate, that a residence here for months would be a sad penance. Otherwise Alicante appears to me decidedly the most favourable health station that I have seen on the south-eastern coast of Spain. The climate must be mild, sunny, and dry, and there are no rice grounds to produce malaria as at Murcia or Valencia. There is a *Huerta*, or irrigated valley, it is true, connected with Alicante, but it is situated at some distance north of the town. I had no time to visit it, but was told that in this valley, as in those of Murcia and Valencia, owing to the presence of water, vegetation never flags, and the crops follow each other in rapid succession all the year round.

Indeed, the entire province of Murcia, from Carthagena to Alicante, must be exceptionally favoured in winter—dry, sunny, cool, and bracing. Its vegetation indicates the same climate characteristics as those that obtain on the Genoese undercliff, great heat in summer, exceptional dryness and mildness in winter. Thus we have in both regions, growing luxuriantly, Date Palms, Lemon, Orange, Carouba trees, Opuntias, Aloes. The

dryness of Murcia must, however, be greater than that of the Riviera, inasmuch as the fertility of the one is entirely owing to irrigation, whereas in the other it is partly the result of the natural rainfall. The dryness of Murcia is so extreme that the entire province resembles the Desert of Sahara, where nothing grows spontaneously, except in the beds of torrents, and on the margin of marshes or lakes, which are dry part of the year. I was greatly struck with the sudden change from Algeria to Murcia: I left Algeria a very garden of verdure, of fertility, and found Spain "the desert" Algeria is so erroneously presumed to be.

I fully believe that all forms of disease requiring such a climate, all that I have enumerated in the medical chapter on the Riviera as adapted to mild, dry, bracing winter weather, would do well in any part of Murcia. I do not say "equally" well, because it remains to be proved by actual experience whether extreme dryness, an atmosphere where it often does not rain twice in the winter, may not be too stimulating; periods of long drought in winter at Mentone have often appeared to me to be so. But to test this question, and for Murcia to be a safe winter refuge for great invalids, there is still much wanted. An English or foreign company with a large capital, should build a good hotel in the suburbs of Carthagena, Murcia, Orihuela, Elche, or Alicante, for they must be all good stations as regards winter climate. A choice situation should be selected, an abundant supply of water obtained by means of an Artesian well, a nice flower and shrub garden therewith created, and the decencies and comforts of northern civilization secured. Were there such an hotel, I should be disposed to spend a winter there myself. No doubt there are in many regions of Murcia subterranean watercourses, and springs capable of being tapped and brought

to the surface if proper means were employed, and thus the area of its fertility might be greatly extended.

The very costume of the inhabitants of the province of Murcia indicates a dry mild winter climate, as that of the inhabitants of Algiers indicates a moist cool one. The latter wear one, two, or three thick woollen bournous with hoods, which envelop them from the head to the feet. The former merely wear. linen drawers, ending a little below the knee, and a linen tunic, which is fastened by a girdle at the waist, and descends nearly to the knees. It is a kind of Greek costume. The head is covered with a species of turban cap, and the soles of the feet are slipped in rope sandals, which leave the feet naked, and would in no way defend them from wet or mud. On holidays, and no doubt generally in winter, they wear on their shoulders a many-coloured scarf, or *manta*, as it is called, as the Highlander wears his plaid.

ALICANTE TO VALENCIA.

The railroad by which we left Alicante for Valencia goes all but due west for about fifteen miles, over calcareous mountain slopes, exactly of the same character as those by which we entered Alicante. The country bore precisely the same stamp of dryness—of vain attempts to raise by careful and laborious husbandry a grain crop. The fields were all limited by the same little banks of earth some eight or ten inches high, to keep in rain that had never come. It was painful to think of the loss, and probably ruin, entailed on the cultivators of the soil by a succession of seasons such as the present, for the stunted Carouba, Olive, and Fig trees showed that the drought, although greater this year than usual, was not an exceptional event. Indeed what I have seen in this region, in Africa, and elsewhere in the south of Europe,

has led me to the conviction that with all the uncertainty of our climate, our agriculturists are better off than those in many regions usually considered more favoured. Wherever a deep well can reach water, there we found one, with a homestead, a few trees, and a sparse cultivation. We constantly saw, here and elsewhere, the entire family, father, mother, children, at work, drawing water, by means, not of bucket and rope, but of a long pole worked as a lever. At an elevation of 1000 feet, we reached a valley through which flows the little river that, nearer the sea, fertilizes the Palm forests of Elche. With control over water, at once commenced determined efforts at cultivation. Fig, Olive, Almond, and Carouba trees, and patches of cereals, occupied the valley, whilst Vines extended over the hill-sides. Gradually, as the elevation became greater, the valley was too steep, and the course of the small river too torrential to admit of irrigation on an extensive scale; the Fig, Olive, and Carouba trees were scantier and smaller, and Vines, all but alone, occupied the southern slopes of the hills.

The soil became very stony and poor, so that, although the Wheat crop, here and there, had come out of the ground, it was only three or four inches high, meagre and thin. About thirty miles from the shore, at an elevation of about 2200 feet, we reached the tableland of central Spain. The soil continued to be of the same character, a thin vegetable loam lying on calcareous rocks, until we came to the junction of the Madrid Railway, at Alcanzar, 2200 feet above the sea-level. We were then in the high plains of central Spain which form Old and New Castile. Not a tree was to be seen in any direction, nothing but naked plains, mountains bounding the horizon, and fields in vain tilled with the plough for Wheat. A more wretched-looking district, agriculturally, I never saw. The Wiltshire downs are

fertility in comparison; the Carouba, Olive, and Fig trees had abandoned us, and were replaced by nothing, neither tree nor bush.

Our progress was so slow that we had plenty of leisure for observation. The Spanish railways are only made with one line of rails, and the rails themselves are much lighter than in England or France. Consequently, frequent stoppages take place, and the speed is not greater than about fifteen miles an hour. Although the railways, which now connect nearly all the principal towns with Madrid, have rendered travelling in Spain infinitely more commodious than formerly, it is still very tedious. The carriages are as good as our own.

At Alicante we left (May 6) a temperature of 76° by day and 70° by night, and a midsummer vegetation. When we arrived on the central plains we had gone back to April. The thermometer was 60°, the wind cold, the cereals only just appearing above the ground, and the few trees we saw at the stations, principally Acacia and Melia Azedarach, just coming into leaf. The latter is very commonly grown for ornament in Spain, and is called Paraiso in Andalusia. It has a pretty flower, very much like the Lilac, but its foliage is thin, so that it really does not deserve the esteem in which it is held; probably from its indifference to drought and dryness. After continuing our route for some hours in a north-westerly direction through this bleak, treeless, calcareous plain, without farms or houses, occasionally stopping at villages or small towns, formed by an agglomeration of sunburnt dwellings huddled on the top or side of a hill, we turned eastward, and began to descend towards Valencia.

As soon as the brow of the mountain was passed, and a south-eastern exposure was obtained, even at an elevation of 2000 feet, as indicated by an aneroid barometer, stunted Olive and Fig trees, with Vines, made their ap-

pearance. The hill-side presented also in every direction deep water-worn ravines, the beds of former rivers and torrents. I say "former" because it is clear that now no considerable body of water ever flows through them, inasmuch as in the very beds of these ravines are planted Fig and Olive trees, which any considerable rush of water during the previous twenty or forty years would clearly have carried away. These dry tree-planted watercourses clearly imply a change of climate, probably the result of the denudation of the plains I had crossed in the morning.

In former historic days these plains were covered with forest trees, which the inhabitants have ruthlessly destroyed, partly for fuel and building, and partly in compliance with an insane but universal prejudice. The Spanish peasantry think that trees harbour birds, and that as birds destroy the cereals, the only way to get rid of the birds is to cut down the trees. Thus have they in the long run changed the climate of Central Spain, modified the natural rainfall, and made the central plains only a degree less dry than the rainless eastern coast.

As the line descends, the Olive and Fig trees become larger, and Carouba trees appear, until at about 1200 feet elevation the scene changes into one of exuberant fertility. Water—water in abundance, a real river—has been reached; systematic, scientific irrigation, a gift of the Moors in times gone by, carries the water everywhere; and the rich vegetation of the irrigated valleys of Murcia and Orihuela is again reproduced, even in a more grandiose style. The rail reaches at this elevation the southern boundary of a triangular plain, or sloping valley, with its base to the sea eastwards, through which three small rivers run from the central mountainous tableland to the sea. Wherever their waters can be carried by irrigation,

the sunshine and heat, combined with protection from northern winds and zealous traditional cultivation, produce the most wonderful fertility. This fertility increases as we descend to the sea, as the conditions of heat and protection increase, as the alluvial soil becomes deeper, and as complete and repeated irrigation becomes easier.

The vegetation is exactly the same as in the valley of Murcia. Large Olive, Fig, and Carouba trees, the latter always in the driest situations, the least accessible to irrigation, often magnificent trees like Oaks; Apricot trees of the same size, really beautiful to look at, but covered with second-rate fruit; Vines on the hill-side; Cereals, Beans, Peas, on the irrigated levels, the former three feet high, thick, luxuriant in the ear. As we approach Valencia there are orchards of Pomegranate and Orange trees, the latter spoilt, as at Murcia, by being grown in bushes, cut down close to the ground, and allowed to grow up with a dozen stems, like large Portugal Laurels. I had heard so much about the Orange groves of Valencia that I was greatly disappointed; these bush trees are not to be compared for beauty to the large Orange trees of Blidah, in Algeria, or to those of the Genoese Riviera. I presume they are cultivated in this way as a protection from the wind, which Orange trees cannot stand, especially if it comes from the north, north-east, or north-west.

As the lower levels are reached a new feature appears, extensive Rice fields. These fields, on the river side, are surrounded with mounds of earth some eighteen inches high. The soil is ploughed, water is let in to soak it thoroughly, then the Rice is sown, water is again let in to the depth of six inches, and the seed ploughed in a second time under the water, the men and mules working with the plough knee deep. The water is allowed to remain on the land, renewed as it sinks in, and the Rice comes

up as a water plant. From the cathedral tower of Valencia the entire expanse of this fruitful region is seen, extending down to the sea. Valencia is three miles from the coast, and the entire district is dotted with these Rice grounds. They are a serious drawback to the public health, giving rise to much intermittent fever in the autumn.

Spanish writers, and travellers in general, go into raptures about the wondrous beauty of these fertile valleys, but I must confess that I cannot join with them. Rice, corn, beans, scattered oil-producing Olive trees, "silk-producing" headless Mulberry trees, Pomegranates, Vines, Orange bushes in rows like soldiers, are all very well in their way as evidences of cultivation and of a fertile soil, but unquestionably they no more conduce to beautiful scenery than does the cultivation of the market gardens round London or Paris. Indeed, these far-famed valleys are market gardens, nothing more, and bounded as they are by barren, naked, calcareous hills, are inferior in natural beauty to any of the spurs of the Atlas ranges in Algeria, clothed with Ilex, Thuja, Mountain Ash, Cytisus, Lentiscus, or to any mountain vale in England in summer time. In winter, too, as many of the trees—the Fig, the Mulberry, the Apricot, the Pomegranate, the Vine—are deciduous, they must look nearly as naked and desolate as Old England, more so than our conifer clothed districts.

VALENCIA.

Valencia is one of the largest cities of Spain, with a population of 108,000. It covers a large area of ground, and is the centre of Spanish civilization on the eastern coast. It has all the resources of a great city, including very tolerable hotels. Although the winter climate is no doubt exceptionally good, it cannot, however, be consi-

dered a health city. The streets are very narrow, mere lanes, and the hotels are all situated, for convenience, in the very centre of the town, or in the small central squares. They are built and managed for the reception of commercial travellers, and of the travelling public in general, not for that of health tourists, who are not wanted, expected, or prepared for. The large commercial cities of the Continent, such as Barcelona, Valencia, Malaga, Marseilles, Naples, may be compared to Bristol, Liverpool, Glasgow in England. They are not health cities, but social and commercial centres, in which invalids and sick people are not thought of. Health towns, such as Cheltenham, Tunbridge Wells, Torquay, Pau, Nice, and Mentone do not exist in Spain. Thus although the winter climate is excellent in some of these cities, real invalids cannot comfortably or prudently remain because there is no provision for them. Then the Rice grounds round Valencia are as much against a residence in the suburbs, as the confined, close, stuffy streets are against a residence in the interior of the town. Lodgings might be had, I was told, on the Promenade, the *Alameda*, but how far the double influence would be avoided, and how far Spanish lodgings could be made comfortable, I cannot say.

I would add, that as regards climate, although I believe that the winter climate of Valencia is dry, sunny, and mild, I much question whether it presents any advantage over the much more accessible Genoese Riviera. Indeed, from the examination of the vegetation, I found reason to conclude that the winter protection from north winds is less, and the winter cold greater at Valencia, as at Murcia.

Whilst at Valencia I went over the Botanic Garden carefully. It appears to be more viewed and directed as a pleasure garden than as a scientific establishment, but even as such was interesting. The plants in flower

(May 6) were the common flowers of our English gardens for May and June; Monthly and Bengal Roses, with a few hybrid and Tea Roses, Delphinium, Antirrhinum, Thlaspi, Iris, Stocks, Silene, Jasminum revolutum, Ranunculus, Eschscholtzia, Sweet William, Poppies, Verbena, Spiræa, Habrothamnus, Pæonies, Nasturtium, Pinks, Aquilegia, Petunia, Carnations, Collinsia, Viburnum, Convolvulus minor, Tritonia crocata, Oak-leaved Pelargonium, Virginian Stock, Aubrietia, Hydrangea. There was a glass-house, much neglected, in which I found the Bougainvilleas, Lantanas, Vincas, Heliotropes, Pelargoniums, Cinerarias, Coleus, as at Murcia. In this glass-house were all the Palms, Cycadaceæ, which are grown in the open air on the Genoese Riviera, with the exception of some Chamærops humilis and Latania Borbonica, planted out in a very sheltered spot. Thus it contained Corypha Australis, Caryota, Dion edule, Thrinax, Cycas revoluta, Cordylines, Dracænas, Yuccas, Ficus repens, Pereskia, Aralia, Philodendron, Russelia juncea, Cyperus alternifolius, Banana. There were Abutilons and Oleanders in the garden, but not in flower. It is from the above facts that I feel authorized to conclude, that the winter cold is greater at Valencia than on the Riviera. If it were not so, why should plants that we can cultivate with ease in the open air be placed in glass-houses, and why also should the open gardens contain little else but what is found in the gardens of more northern European regions? This can be easily understood. The east coast of Spain, favoured as it is in climate, is bounded, north and west, by high mountains, and the towns of Murcia, Alicante, Valencia, are at some distance from the foot of these mountains—that is, from their protection—so that the cold winds fall down upon them. The Genoese Riviera, on the contrary, is at the very foot of the mountain wall that protects it; and

the cold winds, passing over, leave it basking in the south sun. At Valencia and in this region generally, the Lemon tree is only grown exceptionally in very sheltered and warm situations, although in such localities it succeeds thoroughly. Nowhere did I find it grown in large orchards facing the sea, as on the Riviera, between Nice and San Remo. There were some large timber trees in this garden, which are often met with on the promenades in these regions of Spain: Paulownia imperialis, with elegant blue terminal flowers; Celtis australis, a large beautiful tree; Diospyros Lotus, Cratægus melanocarpa, Gleditschia triacanthos, Sophora Japonica, Schinus Mollis.

I had now travelled over a considerable portion of the south-east coast of Spain, from Carthagena to Valencia, and had studied the vegetation and climate with intense interest. I had read of rainless tracts, but I had never seen such an one before, not even on the borders of the Sahara, and I was told it continues to Barcelona. If the rivers which descend from the mountain table-land of Spain were cut off, and if this sub-Alpine coast were left to the rains of heaven, it would clearly be a desert. It would be like the regions of the Desert of Sahara beyond the reach of the torrents that, falling in winter on the most southern ridges of the Atlas, run down their southern slopes, and sinking into the sands, give rise to the oases.

The fact was clear, but what is the cause? Why should the east coast of Spain be nearly as rainless as the Desert of Sahara? It can easily be understood that the high mountains that fringe the western coast of Portugal and Spain should arrest the moisture of the north-west and south-west Atlantic winds, but why do not the north-easterly winds, which are reigning winds in winter in the Mediterranean, and which bring torrents of rain to Algeria, also bring rain to the eastern coast of Spain. I think my

recent journey to Algeria has given me a key to this singular fact in physical geography.

I believe that these north-easterly winds are actually sucked in by the Great Desert of Sahara before they reach the Spanish shore. The vacuum formed by the rising into the upper regions of space of the air heated by the sandy surface of the Great Desert, is attended with a rush of air from the Mediterranean, sucked in to fill its place. From whatever quarters the wind comes, when it reaches the southern regions of the Mediterranean it feels the influence of the African Desert, and rushes south, bringing moisture to Algeria, to the Atlas mountains and valleys, and leaving the eastern coast of Spain in dry calmness. This is probably the real explanation of the calm we met when forty miles from the coast, on crossing from Oran, and not the protection of Cape de Gata. The wind that opposed our progress on leaving Oran was rushing down to the Desert, and we left it behind us. Thus is explained a saying at Alicante, that the bay is so habitually calm that it is a "woman's and child's sea," as also the fact of the Marseilles and Algiers steamers always seeking shelter on the Spanish coast in storms.

VALENCIA TO CORDOVA OVER THE TABLELAND OF SPAIN.

The journey from Valencia to Cordova by rail takes the traveller into the centre of Spain, and of the high tableland (New Castile) in a westerly direction, then descends due south, crosses the Sierra Morena, and follows the valley of the Guadalquivir. For many hours, for hundreds of miles, the line crosses the monotonous calcareous plains already described, treeless and houseless, with no cattle to enliven the scene. The entire region seemed cultivated, but half or two-thirds was bare of all crops, lying fallow. This is, it appears, the Spanish system of cultivation, as with

us ages ago. The land, naturally poor, with a thin soil lying on a calcareous base, very like the chalk downs and fields of Wiltshire, seldom or never manured, is allowed to lie fallow one or two years out of three, and thus to recover itself by the unaided efforts of Nature. The owner supplies the seed, and he and the tenant divide the crop. So in the years of drought or inactivity, as there is no rent paid or received, tenant and landlord both get on, if they can only keep body and soul together. Moreover, they both seem to be quite satisfied if this can be accomplished, and with their abstemious habits very little suffices.

The fact, too, of the entire population being aggregated in towns, as in the Middle Ages, when men had to unite for mutual protection, at a distance from the seat of their labours, is a very great drawback, a national one. The men, with their southern fear of moisture, stay from work if it rains, or appears likely to rain, for festivities, for any excuse; the women gossip all day, the children play about in the streets. Thus the peasant squanders his own time, and does not get that assistance from his family which he does when they live in the centre of the field of labour.

No cattle are seen, and very few are kept on these plains, and I was told that the value of manure is so little known that the peasantry require paying to take it away from the towns. As may be supposed, with such a soil and such views of cultivation, the rising crops of cereals, only from two to four inches high, were very thin, poor, and miserable, offering but little promise for the future. Even at this high elevation, from 2000 to 2500, or 3000 feet, there had been but little rain; and further rain, before the summer heat sets in, was anxiously expected. As already explained, the rainfall from the Atlantic winds is arrested by the high mountains on the western coast of Spain and of Portugal, whilst the easterly winds seem scarcely to

reach this region of Spain, or to bring no rain with them. The destruction of the timber no doubt adds to the drought, as trees are well known to attract rain, in plains as well as on mountains. As to temperature, we had gone back to early April in England, and the cold was positively bitter, very trying after a month in Algeria and south-eastern Spain. There was not the vestige of a southern climate in the aspect of Nature.

As the railway descending due south approaches the Sierra Morena mountains, the direction of which is due east and west, the geological nature of the soil changes. The calcareous soil and rocks are replaced by a siliceous soil, by schistic and sandstone rocks. With this change of soil at once appears a change in vegetation. The change is observed both north and south of the Morena mountains, which are crossed at first through picturesque gorges, and then by a tunnel at an elevation of 2600 feet. The familiar shrubs of the Corsican and Atlas granitic sandstone and schistic ranges reappear. The Cistus or Rock Rose, the Broom—the common European form without spines, not the prickly Broom of the above regions; Thuja and Juniper bushes, the Maritime and Aleppo Pines, Myrtle, Lentiscus, Mountain Lavender, and on the south side, to my surprise, great numbers of the Chamærops humilis Palm. The Tamarisk fringes the river sides, and the Oleander is often seen along with it. Thus in Andalusia the vegetation of Northern Africa, of the Atlas ranges and rivers, is reproduced, especially along the course of the Guadalquivir, and more decidedly than in Corsica, where, as stated, I never saw the Tamarisk, Oleander, nor Chamærops. It is singular that the Chamærops Palm should be described as peculiar to Algeria, for in this part of Andalusia it is as common as Gorse on English heaths. I saw thousands of acres covered with this dwarf

Palm, growing luxuriantly in tufts. Indeed it evidently propagates itself spontaneously wherever the soil in the Guadalquivir valley is too poor to tempt cultivation. As I had seen it likewise in the basaltic soils near Carthagena and Murcia, I have no doubt that it is to be found all over Southern Spain in siliceous districts, just as in Algeria, where it disappears the moment the soil becomes calcareous. This is another evidence of the geological union of Africa and Europe in former days.

After passing the Sierra Morena the line descends rapidly, and soon reaches an elevation of 600 or 700 feet only. Then with a southern exposure, protection from north winds, more rain than on the eastern coast, and a sandy soil, vegetation becomes much more luxuriant than on the elevated central plain that we had just left. Still I saw nothing to warrant the raptures of poets and travellers when describing the far-famed Guadalquivir valley. It seems to me that these raptures are rather the result of comparison with surrounding nakedness and sterility than of any actual exuberant fertility of the valley itself. Although there is a good sized river rolling its precious waters in the midst of a wide and level plain, there is no irrigation. This at first puzzled me, for the entire region was many centuries in the hands of the Moors, who are the people who made and established the irrigation works of the really luxuriant valleys of Murcia, Valencia, and Granada. Indeed Cordova, which is built on the river bank, was the centre, the capital of their dominion. Then it occurred to me that it is of but little use to irrigate a poor sandy soil, as the water must all sink through it, and do no good commensurate with the expense incurred for irrigation. The valleys named above, where such extensive irrigation works have existed for centuries, and where they secure exuberant fertility, are all lime valleys.

Where the sandy or gravelly soil through which we passed was cultivated, the crops were thin and poor—indeed wretched, and that without the excuse of altitude. Side by side with these cultivated regions were wide moorlands covered with bush Ilex, Mountain Lavender, Broom, and the Chamærops Palm, which no doubt in former days extended over the entire region, and yet remains, as we have seen, on the poorer uncultivated soils, just as Heather and Gorse remain with us. Still the entire country had a verdant, smiling look. In the vicinity of villages and towns, generally built near the river, in regions where the alluvial soil is deeper, are groves of Olives, Figs, Pomegranates, and as we neared Cordova occasional Palms—the Phœnix dactylifera—were seen. The hill-sides in the distance were no longer naked, as in the lime regions, but clothed more or less with Ilex, Cork Oak, Pines. Indeed, poor, sandy, gravelly soils, when covered with very little vegetable soil, are everywhere, even in dry, warm climates, more verdant, more luxuriant with their peculiar vegetation than lime rocks, hills, or soils under the same conditions. The vegetation that clothes these soils bears drought better, also, than that which lives in rich alluvial soils, especially when they rest on clay. The reason is no doubt that in sandy, gravelly soils the roots of the plants, shrubs, and trees can go down all but any distance in search of moisture and find it, whereas on lime soils and rocks, or on clays, when they reach the subsoil they stop short, and depend only for nourishment and moisture on what they find above.

Thus I remember, in the very dry summer of 1868, being very much struck by the difference between the state of the vegetation of Surrey and Middlesex. In Surrey, where my country residence is situated, and where much of the soil is sand or gravel, the Weymouth Pines, Spruce

Firs, Scotch Firs, Birch, Beech, Oaks, Chestnuts, Heather, were perfectly healthy and green in August, after three months' drought. There was no perceptible difference as compared with other years. But when I crossed the river into Middlesex, on the rich alluvial soils lying on clay, I found a totally different state of things. The ground vegetation was parched—all but reduced to hay, and the trees were losing their leaves as in November. Another reason may possibly be adduced, as my gardener suggested. Our Surrey plants are like poor people, accustomed to poor fare, so when a famine comes they bear privation better than their richer Middlesex neighbours, accustomed to higher and better food.

CORDOVA AND SEVILLE.

At Cordova and at Seville, both on the Guadalquivir river, latitude 37°, the same climate and vegetative conditions appear to prevail as on the south-east coast. The Date Palm is seen here and there, grown for ornament, not for fruit, which no doubt does not ripen. Orange trees grow splendidly in courtyards and gardens, protected by high walls from the north winds, as in the Orange court of the cathedral and in the gardens of the Alcazar at Seville; but they are not seen, as trees, in open, unprotected spaces, exposed to the north. In the public gardens, which are numerous, I found (May 11), the common garden flowers so often enumerated, as elsewhere a month earlier than in the north of Europe; but there was very little, if any, evidence of immunity from cold nights and cold winds in winter. There were Bengal, monthly, and common white Roses, but few hybrids or Teas, Delphiniums, Hollyhocks, Verbenas, Phlox, Pelar-

goniums, Aquilegia, Lilies, Carnations, Thlaspi, Sweet William, but no Lantanas, Abutilons, Daturas, Wigandias, and winter Salvias. Indeed, the gardens must be nearly as naked in winter as our own—the more so as the trees grown are nearly all deciduous, meant for summer shade. Clearly, the inhabitants of these regions accept the winter as winter, and have no idea of deceiving the eye, no wish to escape from its influence on the landscape by planting evergreens. The very summer-like look of the Genoese Riviera is owing to the fact that the complete protection from northerly winds admits of a southern evergreen vegetation—Olives, Lemons, Oranges—which exists all but alone.

There was much to see, much to enjoy in these two great cities, but I must leave the description of their charms to pleasure tourists. My business was merely to find out by actual observation, by the analysis of the vegetation, how far they are fit to be selected as a winter residence by confirmed invalids. Viewed in this light, my verdict, without any hesitation, is unfavourable. For persons slightly out of health, who wish to muse away a winter in a southern land, in the midst of the memories of former days, and who are disposed to select as the object of their studies and meditations the Moors and Saracens of Old Spain, their monuments, their habits and customs, which survive to this day, Cordova or Seville will do very well, and will reward the fatigues of the journey. There is immunity from actual cold weather, much sunshine, and the novelty of Spanish life and ways, in addition to the glamour of the past.

The real invalid, however, intent on finding the best climate he can to escape from severe suffering, or to save life, can do much better. All the disadvantages enumerated as pertaining to Valencia and Murcia, are equally

rife at Seville. The streets are narrow, the hotels are all in the centre of the town, the weather must be often cool, not to say cold, and a considerable amount of rain falls in the course of the winter, owing to proximity to the Atlantic. Both Cordova and Seville are in the plainlike valley of the Guadalquivir, which throws itself into the stormy ocean a little to the south-west.

None of the towns of the south or Moorish region of Spain present any grandeur, anything worthy of notice in an architectural point of view, with the exception of their cathedrals. That of Cordova is a magnificent Moorish mosque, still presenting eleven hundred Saracenic columns, although two hundred were destroyed, with very bad taste, under Charles V., to make way for a Gothic addition, a nave, very grand in its proportions, but sadly out of harmony with the mosque to which it was dove-tailed. The Seville cathedral also is one of the most magnificent monuments of Gothic architecture that I have ever seen, from the immense height of the columns, and of the roof which they support. The Alcazar, or the remains of the Moorish Palace, is worthy of all praise and admiration.

The towns themselves, on the contrary, are mean in the extreme. They are composed of small, whitewashed, two-storied houses, enclosed in tortuous streets from ten to fifteen feet wide. Most of these streets are quite inaccessible to a carriage, and in those that are so used, two carriages can only pass each other at foot's-pace.

Owing to the diminutive size of the dwelling-houses, and to the narrowness and insignificance of the streets, the grandeur and stateliness of the Seville cathedral, produced, as did that of Murcia, a peculiar impression on my mind. It would seem as if the town, with its human inhabitants, had been nothing, whilst religion and the church had been everything, towering as the latter does immeasurably

above humanity. No doubt this was the impression meant to be conveyed, and who would do otherwise than acknowledge, with humility and reverence, the correctness of the antithesis, had the religion of those who created these magnificent temples cast a truly Christian mantle over the country. Unfortunately, it was not so at Seville. Under the shadow of the grand cathedral it is impossible not to recollect the gloomy fanaticism that reigned in its walls for centuries, under the cloak of religion. The horrible tyranny of the Inquisition, the terrible human sacrifices that bloodthirsty institution periodically demanded, with its frequent "auto-da-fé," its dungeons filled with victims during centuries of oppression, all rose bodily before me. In no part of Spain were greater horrors perpetrated under the mask of religion. This gloomy religious tyranny dwarfed the intellect of the Spanish nation, destroyed its national prosperity, and made it what it is at present, a mere shadow of the past. Now that these shackles have been cast off for ever, now that mental as well as political freedom has been attained, a glorious future is opening out for Spain as well as for Italy. As Wordsworth truly says in the verses quoted at the head of this chapter, there are FORESTS of men, good and true, yet to be found in Spain. The nation is sound at the core, and, once freed from the trammels of superstition, ignorance, and bad government, will no doubt rise in the scale of humanity, and once more assume its rank among nations.

The Spaniards are a race of mountaineers, hardy, sober, abstemious, enduring of fatigue, kind, and cheerful. They have only been too true to their selfish, fanatical rulers, who have constantly led them to death in a bad cause, have constantly traded on their simple-minded devotion and affection to religion and the king. By supporting a corrupt court for the last twenty years, the clergy

have lost their hold on the respect of the nation, and have fallen with the court, and that most deservedly.

Nearly all the best houses are built on the Moorish model, as at Algiers. They have the central court or garden, which is often adorned by a fountain as well as by flowers. The life of the family is centred in and around this court, or interior garden. In summer, an awning is drawn over from above, and it becomes the general sitting-room during the hot weather.

We met with the greatest kindness and civility from all classes of Spaniards, both in the towns and on the roads. All we met seemed to vie with each other to help us on. We were more especially struck with this cordial civility in Seville. Owing to the tortuous nondescript character of the streets, we generally lost our way when we went out without an interpreter, and all but invariably the first person of whom we asked the road volunteered to take us home. On one afternoon, I and my friends, three in number, all went out separately, all four lost our way, and were all four brought back to the hotel by four different persons.

MALAGA.

From Seville I took the railway to Malaga. The line passes in a south-easterly direction across some hilly fertile plains, then ascending through a mountainous district, pierces the Sierra Nevada by a series of deep cuttings and tunnels. On emerging, it descends rapidly into a cultivated plain at the edge of which, on the southern coast of Spain, is Malaga.

I was much disappointed with much vaunted Malaga. It is a close, confined Spanish commercial seaport, with 110,000 inhabitants, packed into a very small area, the

streets being from five to ten feet wide only. The port is dirty, the shore contaminated with all kinds of filth, both inside the town and for some distance from it. The hotels are gloomy and dingy, and situated on a miserable promenade —the only one in the town. This, the Alameda, is merely 300 yards long by forty broad, planted with double rows of shabby deciduous trees, Elm, Acacia, Sophora Japonica, Paradaiso and small Planes, so that in winter it must be quite naked. There are some noseless busts, and any amount of mendicants and gutter children. This is the resort, the solace, of the poor invalids condemned for their sins to winter here.

The only real garden within three miles of the town is the English cemetery, on a burnt-up hill-side, where even the Pelargoniums had scarcely any foliage, owing to the long drought, merely a few terminal leaves and flowers. Here at last there really was the evidence of a very mild southern winter, such as we have at Mentone, in the presence of Lantana, Bougainvillea, Carouba, Schinus molle, Heliotrope, Aloe. But the evidence of exceptional winter mildness was still more marked in a garden belonging to an American gentleman, about three miles from the town, at the base of the mountains which, rising due north behind Malaga to a height of 3000 feet, protect it thoroughly from northerly winds. Here I found, in full flower, Euphorbia jacquiniflora, Russelia juncea, Lantanas, Abutilons, Habrothamnus, Salvia Horminum, gesneræflora, Bouvardia flava, Erythrina crista galli (Coral tree), Gaillardia, Pittospermum; indeed, the same winter flowers and vegetation as at Mentone. I may add that Malaga is the only place in Algeria or Spain where I found the same evidence of winter mildness or entire immunity from frost as on the Genoese Riviera from Nice to San Remo. The winter climate of Malaga must present the same ex-

ceptional mildness, but the social and sanitary conditions are vile, so bad as entirely to neutralize the climatal advantages, unless one could have the country house I saw, or a similar one, miles from the town, at the base of the ravine or gorge by which Malaga is reached by rail. In descending through this valley, I saw very fine Orange trees.

Such being the case, the climate of Malaga being, as proved by its vegetation, exceptionally mild and dry, without losing the bracing character that pertains to all "dry" European climates in winter, it would seem that the encomiums conferred upon it by many writers are justified. And so they would be if Malaga were a healthy city, or were there healthy suburban residences or hotels, in good situations, in which invalids could reside.

Unfortunately, however, none of these conditions are realized. The city is situated on a sandy plain on a dead level, its streets are even narrower and closer than those of Seville or Valencia, and its sanitary condition is decidedly worse. It may be thought that a mere flying visit does not entitle me to speak so authoritatively on the subject, so I will quote other data.

There have been five epidemics of cholera at Malaga since 1832, when it first appeared in Europe, and none of the densest and most unhealthy centres of European population have been more afflicted. It is a well-known fact that cholera has constantly chosen the most populated and most unhealthy cities in which to exercise its ravages, and the fact of five epidemics of cholera having occurred in any locality during the thirty-seven years that have elapsed since it first appeared in Europe, must be fatal to a reputation for salubrity.

I would, also, refer my readers to the most recent writer on the climate of Malaga, Dr. More Madden, in his pam-

phlet entitled "The Climate of Malaga in the Treatment of Chronic Pulmonary Disease. Dublin, 1865." At page 18 Dr. Madden says very graphically and explicitly:—

"The hygienic condition of Malaga is as defective as it can well be. In a great many of the houses there is no provision for sewerage of any kind; and even in the more civilized part of the city, in the hotels on the Alameda, the drainage is very bad indeed. The main sewers, which run under the principal streets, are choked up by the decomposing accumulation of years, and being provided with immense square openings, through which the dirt and rubbish is thrown into them, in the centre of the streets, the mephitic gases evolved below freely escape into the atmosphere of the narrow lanes of the city. The bed of the Guadalmedina is really the main sewer of Malaga; and as for nearly ten months annually it is little more than a wide dry bed of gravel, being dependent on the torrents in winter for its purification, the odour it exhales in warm weather renders a residence near it as disagreeable as it is unhealthy.

"The connexion between epidemic disease and bad sewerage is, I think, very well illustrated in Malaga, which has at all times been remarkable for the prevalence of zymotic disease. I have collected from the older Spanish writers notices of no less than twenty-two epidemic pestilences, some of which almost depopulated the city, between 1493 and 1804. The earlier of these seem to have been epidemics of genuine Oriental plague, and the latter generally assumed the form of yellow fever. Of late years, since 1834, these pestilences have not appeared, but their place has been taken by Asiatic cholera, which has several times ravaged the town."

The above most inviting description of Malaga is written

by the author of a recent work on climate, who, after travelling all over Europe to find the best winter sanitarium for the consumptive, has fixed on this most salubrious town as the sought-for Eldorado. So that this chosen European *habitat*, in former and present times, of the plague, yellow fever, and cholera, is to be selected to restore the health of our poor countrymen and women, already debilitated by disease, constitutionally broken down, and a prey to an organic malady.

Surely, as I have repeatedly stated, it is mere wanton trifling with human life to send such sufferers, with a view to the recovery of their health, to winter in large, filthy southern towns like Rome, Naples, and Malaga, foci of malaria and of epidemic and zymotic diseases. Does not the simplest common sense tell us that invalids, with the seeds of death in them, should not be located for months in the centre of towns where even the healthy cannot live, and die annually at the rate of thirty or more in the thousand? Singularly enough, I believe I am the first, and as yet the only writer on climate, who has recognised and forcibly insisted on the all-important and self-evident fact that consumptive patients should reside, winter or summer, in England or abroad, where they can breathe pure air night and day—that is, in the country, in healthy villages, in the healthy outskirts of towns. Their breathing pure air is of infinitely more importance than a few degrees of temperature more or less, or a little more or less protection from this or that wind. A fact so consonant with modern physiology and pathology has only to be brought forward to be universally acknowledged, and the time is near when medical men will wonder how they could ever think of cooping up their patients in unhealthy southern towns for the sake of mere warmth. Better far that they should stay at home than purchase

exemption from the cold of our climates by exposure to hygienic conditions which produce, as a matter of course, in successive generations, plague, yellow fever, and cholera.

Guided by what I saw myself, and by what Dr. More Madden and others tell us, as above, I consider I am perfectly warranted in advising the medical profession to strike Malaga out of the list of winter resorts for invalids for the present, notwithstanding its really good climate. When hotels and villas, combining the requirements of English invalids, have been built some miles out of the town, at the base of the hills, where the wealthy Malaga merchants have established their country residences, then, and then only, will it be prudent for invalids to winter at Malaga.

MALAGA TO GRANADA.

We started for Granada at six o'clock in the morning, in a kind of one-bodied omnibus stage drawn by eight mules, and at once struck the mountain to the north-east, at the foot of which Malaga is situated. The road wound up the south sides of the mountain for three hours, giving us a splendid view of the city, which seemed to have crouched itself around the very large cathedral on one side of a triangular plain, bounded by high mountains and the sea.

These mountains are schistic in formation, friable, and water-worn into innumerable sugar-loaf cones, the sides of which are everywhere planted with Vines. The Vines are cut down to the stumps annually, and at the time of my visit (May 14) were just sprouting, so that the hill-sides, at a distance, seemed covered with Grass. The Vine-clad hills spoke of a rich wine country. As we as-

cended, the Chamærops humilis, the Genista, Cytisus, and Mountain Lavender, showed themselves as usual. We left the thermometer at 72° at night, 78° in the day, at Malaga, to find it three hours later, at an elevation of 3000 feet, only 58° at nine o'clock, with a cold wind. Ilex, Cork Oak, cereals, and Vines occupied the hill-sides, until we descended to limestone rocks and soil, where the Olive, Fig, Carouba, Mulberry, reappeared, with luxuriant ground crops, and near water Lombardy Poplars, White Poplars, and Willows. This is the character of the luxuriant irrigated valley around Granada, the renowned "Vega," which repeats at an elevation of about 2000 feet the fertility of the Murcian and Valencian lime valleys. There is more general verdure, however, for it really does rain in the province of Granada, so that cultivation does not depend entirely on irrigation. The entire country, from the moment the mountains which overcap and protect Malaga had been crossed, bore the evidence of winter rain. Altitude and proximity to the Atlantic clearly controlled other influences.

The mode of travelling greatly interested us. We had a postillion on one of the first mules, a coachman with long reins on a high box, and a supplementary driver, called the mayoral, sitting at his feet at times, but oftener running by the side of the mules, whipping and urging them on. The endurance of the young postillion and of this mayoral positively amazed me. The former rode all the journey, eighty miles; he was twelve hours in the saddle. The latter ran, a great part of the day, by the side of the mules, lashing them, shouting at them at the top of his voice, and often throwing stones with which he filled his pockets. This was, no doubt, the way in which travelling was carried on in Spain before the days of railways. We thus passed through a deal of pretty mountain

scenery, Vine-clad hills, fertile Olive and Mulberry-covered valleys.

Granada, when I saw it in the middle of May, was very lovely with spring verdure. Owing to its altitude, 2500 feet, in the midst of a mountain region, there is no lack

THE ALHAMBRA.

THE COURT OF LIONS.

of moisture; indeed, it rained heavily while I was there. In winter, I was told, it is often very cold, snow falls and it freezes; whilst in the height of summer it is very hot, as are all similar elevations in Spain. Thus Granada is only fitted for a spring or autumn residence.

In winter it is too cold, in summer too warm. The great attraction is the Alhambra, the palace of the Moorish caliphs in the days of old, still in wonderful preservation. This "architectural dream" is still in a wonderful state of preservation, and deserves a week's scrutiny and study. It is an earthly realization of the Mahommedan's idea of paradise. Surrounded by flowers and houris the sensual Mahommedan could here shut out the world and fancy that he had really crossed the bridge as sharp as a razor, supported by a guardian angel, and had arrived at the paradise promised to all good Mussulmans by Mahommed.

Time was precious, so I was obliged to tear myself away from the fascinations of Granada and the Alhambra, and to pursue my pilgrimage "homewards."

GRANADA TO MADRID.

We left Granada in splendid style, in a grand diligence just like the old French three-bodied diligences of former days, drawn by a string of twelve handsome mules. We had three attendants, the postillion, the coachman, and the mayoral or supernumerary mule-whipper. The postillion rode all day, from four o'clock in the morning until five in the afternoon, when we reached the railway at Andujar. A Spanish travelling companion told me that before the railroad was opened to Andujar the same postillion used to ride from Granada to Madrid, two days and a night, and sometimes died at the end of the journey. The driver had clearly the best of it, for he sat still, merely holding the reins and occasionally using his long whip. The mayoral, like the postillion, had a hard time, for he was up and down every five minutes, and was as often running by the side of the mules, shouting at the top of his voice, lashing out with a long whip, or throwing stones at them, as

sitting in his seat at the feet of the driver. These men afforded a good illustration of the power and endurance of human muscle and vitality in youth under constant training.

Until we struck the Guadalquivir valley, a few miles before reaching the rail, we were all day in a mountain district, between 1500 and 2500 feet above the sea. Here it clearly rains in winter, and the scenery was very picturesque and lovely. The rocks were generally secondary, cretaceous, with here and there schistic deposits from the higher primary mountains. In the lower valleys we found the Olive, Mulberry, Poplar, Willow, in the higher schistic regions, the Cork Oak, the Ilex, sometimes grand trees, with the Broom and similar shrubs. The Hawthorn was very common on the roadside, and being in flower gave quite an English look to the road.

We took the railway at six for Madrid, but I was determined not to spend a night on the road, such a course being altogether opposed to my travelling principles. I was told that there was no bearable place where I could find accommodation for the night to break the journey, but I determined to run any risk, and stopped at 10.30 at Val de Penas, a little town, the centre of a well known wine district. I and a friend, who was willing to try the adventure, were deposited at the station, half a mile from the town. I managed to make the station-master understand that we wanted beds, and he sent a porter off with us. In a few minutes we reached Val de Penas, an assemblage of one or two-storied, whitewashed houses, in wide, clean, regular streets at right angles to each other. We knocked at a small but respectable dwelling-house, the inmates of which had retired to rest, and after some demur were admitted, and shown into a "Moorish" quadrangular courtyard, with an arcade all

round. A bustling, good-natured woman ushered us into a nice clean room, opening on this arcade, where we found two decent beds, and after the hard day's journey from Granada, we soon found oblivion in slumber.

We had not to leave Val de Penas until one o'clock, so did not rise very early. On appearing we found our lively and obliging hostess busily employed combing the long black tresses of a dark-eyed grown-up daughter, who was sitting on a chair in the courtyard. This performance concluded, with sundry amiable nods and smiles from mother and daughter, we contrived by signs to make known our wants for breakfast, which were forthwith attended to. The repast was a very pleasant one, and partaken with a certain degree of state under the arcade, for the best crockery, evidently treasured curiosities, was brought out for the occasion. By this time we had found out that we were not in a "Posada," but guests of the blacksmith of the village. The station-master had rightly concluded that we should be better treated there than at the inns, which we subsequently saw, and which did not look very tempting. Whilst we were breakfasting our hosts sat down near us, and what with signs, smiles, gestures, and the few words of Spanish we could muster we managed to keep up an animated conversation. We were evidently even more a subject of curiosity to them than they were to us.

After breakfast we made a perambulation in the town, and were everywhere received with great cordiality and civility. The population bore stamped on their features good nature, sobriety, hard work, and health. They clearly belong to the simple-minded race to which I have alluded, to the race that has for centuries shed its blood like water to defend superstition, naively thinking it was supporting religion, and to protect a corrupt race of

kings and nobles, under the impression that it was performing a sacred duty to its native country. Such a race, once educated, emancipated from the trammels of superstition and of fealty to corrupt rulers, who have forfeited every claim to respect and support, is sure, as I have said, again to raise the name of Spain to a high rank in the family of nations.

Amongst other houses that we visited was a large wine exporter's premises. The business was carried on in a large quadrangular courtyard of the usual character surrounded by buildings. In addition to vats containing wine, there were an immense number of pigskins, some filled with wine and doing duty for casks, others in the various stages of preparation for that purpose. The skins are very artistically pulled off the animal, so as only to leave two good sized holes, one at the neck the other at the tail, and four small ones at the feet. The larger holes are pieced with pieces of skin; the smaller are sewn tightly, so that no escape of the wine is possible. Previously to this being done the bristles are scraped off and the skins submitted to some softening process. We saw hundreds thus preparing for use. At one o'clock we regained the train, mightily pleased with this little insight into Spanish village life, and grateful for the cordiality of our reception by all with whom we came in contact.

MADRID.

Madrid is not like any other city that I saw in Spain. In its modern part, at least, it resembles a portion of Paris or of Bordeaux. The houses are tall, many-windowed French houses, and the streets are tolerably wide Parisian streets. The most peculiar feature about Madrid is its situation in a plain 2700 feet above the sea, ten

miles from the southern base of the Guadarrama chain of mountains. The mere altitude makes it cold even in the latitude of 40° in winter, and the situation at some distance from the foot of high mountains covered with snow from autumn to spring, exposes it to dry, piercing down draughts and winds from the north. These meteorological conditions render the inhabitants liable to acute inflammatory affections of the chest, which are very common, severe, and fatal. In the summer the elevation does not preserve Madrid in this latitude from extreme heat. It is then as fiercely dry and hot as it is dry and cold in winter. When I was there, May 20, the temperature was cool and agreeable, and the weather very pleasant. This I was told is generally the case in spring and autumn.

There is much to see at and near Madrid, but as I had only a few days to dispose of, after examining the magnificent picture galleries, I turned my attention to my usual study, vegetation as illustrating climate.

It is most interesting to observe at Madrid, on an extensive scale, how elevation neutralizes latitude. Judging from the vegetation, the winter and spring must be nearly as cold as they are in England, although the summers are much hotter. When I was there, May 18, there were but few spring flowers in the public gardens, and the planting out of Geraniums, Heliotropes, Verbenas, had but just been completed. There were Stocks, Pansies, Delphinium, Sweet William, Aquilegia, Eschscholtzia, Silene, Antirrhinum in the gardens, in flower or coming into flower. The deciduous trees had just made their new leaves; there were but few conifers or evergreens. I here found the names of several ornamental trees which I had seen in other parts of Spain without being able to obtain their name. The following were growing as large trees:—Cercis siliquastrum, Ailantus glandulosa, Celtis australis, Pinus

maritima, P. halepensis, Robinia pseudo-Acacia, very commonly used all over Spain as a town tree, no doubt from its doing well with little water; the same may be said of the Sophora Japonica and of the Meliah azedarach, Celtis occidentalis, Tilia intermedia, Gleditschia triacanthos, Negundo fraxinifolium, Broussonetia papyrifera, Acer pseudo-Platanus, Acacia Farnesiana, Prosopis siliquastrum, Platanus occidentalis, Duvaua dependens, Gymnocladus Canadensis, Robinia umbraculifera, Cedrus Libani, Populus canacens, Acer campestre, Cupressus horizontalis. The soil at Madrid is partly siliceous, the great mountains which rise to the north to a height of 5000 or 6000 feet being granitic.

The railway from Madrid to the northern frontier ascends to a height of nearly 6000 feet, into an Alpine country thickly wooded with Conifers and Oaks. The latter were then beginning, the 20th of May, to send forth their leaves. It is the north winds from these snow-covered mountains that contribute so much to embitter the climate of Madrid. On their northern slopes the country is, for a great distance, barren and treeless.

True to the principle not to travel at night, I stopped at Valladolid and Burgos to break the journey, and found both these cities worth visiting. They are much less Spanish than the towns south of the Guadarrama chain. The streets are tolerably wide, whilst the houses reach three stories and are not all whitewashed. Altogether there is a northern character about them, explained by the elevation, which is considerable, and by the consequent coldness of the winter temperature. In Valladolid I saw the house in which Christopher Columbus died, a memorable monument, and also the house and room in which Michael Cervantes wrote *Don Quixote*. I sat for some minutes at the very window from which he must

have daily looked when composing his renowned work. At Burgos the great sight is the cathedral, a truly magnificent structure, quite worthy of twenty-four hours' delay on the part of the passing traveller.

After leaving Burgos we rapidly approached the Pyrenees and their spurs, passing through the Basque province. Here we lost sight of the peculiar features of central and eastern Spain, as a rainless, treeless country with warm shores and cold high central plains. Trees, forests, pastures made their appearance, as also the outward evidence of thoughtful, skilful cultivation. It was clear that we were approaching the shores of the Atlantic, and the moist climate of the western coast of Europe. St. Sebastian was reached, then the French frontier, and a few minutes later Biarritz.

MEDICAL CONCLUSIONS.

SPAIN.

The medical conclusions at which I have arrived, respecting the climate of Spain, have been recorded as I have progressed in the narration of my tour, so I have now merely to recapitulate.

The health regions of Spain are confined to the eastern and south-eastern coasts, at the foot of the central table-land. Owing to the south and north-westerly winds having their moisture precipitated by the mountains of the western and central regions of Spain, and owing to the north-easterly winds being pulled down to Algeria by the Desert of Sahara, the eastern coast of Spain is probably the driest region of Europe, drier even than the Genoese Riviera.

This eastern coast of Spain is also one of the mildest winter regions of Europe, although with the exception of

Malaga, probably not quite so mild, not quite so free from slight winter frosts, as the more protected regions of the Genoese undercliff.

Such being the case, all that I have stated in the medical chapter on the Riviera must equally apply to these regions of Spain. Its climate must be equally beneficial in all cases requiring dry, mild, bracing, sunny, stimulating winter weather.

GENERAL MEDICAL CONCLUSIONS.

Those of my readers who have carefully followed the descriptions I have given of the countries visited on the shores of the Western Mediterranean, North and South, East and West, will have seen that the statement made in the Preface has been justified by the analysis of their climate and vegetation. These health regions may be divided into three sections. 1st. The mild and dry: the Genoese undercliff, and the east and south-east coasts of Spain. 2nd. The mild and moist: Corsica, Sicily, and Algeria. 3rd. The west coast of Italy, which appears to occupy an intermediate position, meteorologically as well as geographically.

The dry climates are indicated in all the cases in which a dry mild winter climate is desired—that is, in the ordinary forms of chronic chest disease, pulmonary consumption, chronic bronchitis, bronchitic asthma; in all chronic diseases of the kidney; in debility and anæmia from whatever cause; in the scrofulous and catarrhal affections of childhood and early youth, and in the failing vitality of old age. In such diseases and vital conditions I do not see that there can be any rational hesitation on the part of the physician who sends his patient to winter in the south of Europe. His choice can only lie between the Genoese undercliff and the south-east coast of Spain.

At the same time, in my opinion, real invalids are not, at present, warranted in choosing any part of Spain as a winter residence, from the want of any kind of preparation to receive them. The only hotels are commercial hotels in the midst of commercial towns, and there are no villas out of the towns. The Genoese Riviera, on the other hand, being fully prepared to receive invalids, it must have the preference until such time as Spanish or foreign capitalists make the necessary preparations for them in Spain.

The moist and mild climates are indicated in the exceptional forms of chest disease—consumption, bronchitis, and bronchitic asthma—in which a dry air appears to produce irritation; probably in most forms of meré nervous and idiopathic asthma; in neuralgic states in which the neuralgic element is increased by a dry stimulating atmosphere; in some forms of irritable cutaneous disease. Lastly, they may be tried, experimentally, in any case that clearly does not do well in the drier climates.

The moist and mild Mediterranean winter climates described, may be assimilated to those of our own winter sanitaria, Hastings, Ventnor, Bournemouth, and Torquay. They are, however, much milder and sunnier. The rain falls in torrents, and between these tropical rains there is much more fine, sunny weather than is met with on the British channel, although the air remain moist. Such climates have an advantage over our British winter climates, inasmuch as the thermometer is generally above 50° or 55° in the day throughout the winter. With the thermometer thus above 50° or 55°, as I have stated, a moist atmosphere has not as great a tendency as in colder weather, to give rise to catarrhal affections of the thoracic mucous membranes, to aggravate those already existing, and to arrest cutaneous secretion, thereby throwing extra action on the lungs and kidneys. In this double sense

these warm, moist winter climates are preferable to our own cold, moist winter climate. At the same time, they do not contribute to the treatment of disease the bracing, invigorating influence of the drier winter climates of the Mediterranean. This is the element that tells the most on the general health, the break-down or decay of which is at the root of most cases of chronic disease.

Biarritz and Pau belong to the moist, mild winter climates of Southern Europe. Their exposure without protection to the north gives them, however, a colder winter climate than that of the Mediterranean. They occupy a medium position between the moist sanitaria of Northern Europe and those of the Mediterranean.

THE ALHAMBRA.

APPENDIX.

THERMOMETRICAL TABLES.

TABLE I.

Dr. Henry Bennet's Media at Mentone for Ten Winters.

November.	MIN.	MAX	D.	December.	MIN.	MAX	D.	January.	MIN.	MAX	D.
„ 1859	54·4	61·4		„ 1859	44·8	55·6		„ 1860	44·8	52·8	
„ 1860	49·5	60·9		„ 1860	44·3	59·2		„ 1861	46·1	52·4	
„ 1861	47·7	60·3		„ 1861	43·4	54·8		„ 1862	43·2	50·7	
„ 1862	50·2	61·2	6·1	„ 1862	42·6	54·	6·	„ 1863	43·2	52·4	5·5
„ 1863	50·5	63·	6·6	„ 1863	44·3	51·7	6·5	„ 1864	38·2	48·7	6·3
„ 1864	48·	60·8	6·1	„ 1864	44·2	56·2	6·1	„ 1865	43·	55·	7·
„ 1865	50·8	60·3	3·2	„ 1865	43·6	54·5	4·5	„ 1866	43·8	55·3	3·6
„ 1866	50·	62·3	6·6	„ 1866	45·7	55·7	5·	„ 1867	43·8	54·1	4·6
„ 1867	47·9	62·2	6·2	„ 1867	41·6	55·3	5·8	„ 1868	42·3	53·6	5·1
„ 1868	46·	56·5	5·	„ 1868	48·8	58·7	3·7	„ 1869	41·5	53·3	5·1
Media.....	49·5	60·9	5·7	Media.....	44·3	55·6	5·4	Media.....	42·9	52·8	5·3

February.	MIN.	MAX	D.	March.	MIN.	MAX	D.	April.	MIN.	MAX	D.
„ 1860	40·	55·9		„ 1860	44·9	59·8		„ 1860	51·2	67·5	
„ 1861	45·7	52·9		„ 1861	44·4	58·9		„ 1861	49·8	66·9	
„ 1862	41·9	55·8		„ 1862	46·7	61·9		„ 1862	51·2	68·5	
„ 1863	42·3	54·1	8·5	„ 1863	45·4	58·9	6·9	„ 1863	50·9	67·	5·6
„ 1864	41·9	53·6	6·	„ 1864	45·4	62·	5·3	„ 1864	51·8	66·1	5·4
„ 1865	40·1	54·	8·3	„ 1865	40·5	57·3	8·4	„ 1865	55·1	66·9	6·6
„ 1866	46·5	61·1	4·1	„ 1866	44·	60·6	4·1	„ 1866	49·	66·9	5·
„ 1867	45·4	56·9	4·5	„ 1867	47·2	62·4	4·	„ 1867	51·4	68·4	6·5
„ 1868	46·	56·7	3·7	„ 1868	45·2	59·	4·9	„ 1868	49·5	66·3	4·6
„ 1869	46·6	58·3	3·6	„ 1869	41·5	56·7	5·5	„ 1869	48·9	69·1	4·5
Media.....	43·5	55·9	5·5	Media.....	44·5	59·7	5·6	Media.....	50·9	67·4	5·5

Mean of Maximum heat of the Six Winter Months 58·7

„ Minimum „ „ . . 45·9

Mean of Degrees of Dryness for the Six Months during Seven Winters, as indicated by the difference between the wet and dry bulb thermometers, marked D in the Table . . . 5·5

TABLE II.

M. de Brea's Monthly and Annual Media for Mentone for Ten Years, from 1850 *to* 1860.

Dr. Henry Bennet's Media for the Six Winter Months, for Ten Years, from 1859 *to* 1869.

	M. de Brea.	Dr. Bennet.	Combined Media for 20 years.
	°	°	°
January	48·2	47·8	48·
February	48·5	49·7	49·1
March	52·	52·1	52·
April	57·2	59·	58·
May	63·	—	—
June	70·	—	—
July	75·	—	—
August	75·	—	—
September	69·	—	—
October	64·	—	—
November	54·	55·2	54·6
December	49·	50·	49·5
Annual	60·8		

M. de Brea's Media were obtained by adding the observations made at 6 A.M., 2 P.M., and 10 P.M., and then dividing by three, those of the ten years by ten. The maximum was 89°·6, the 3rd August, 1859. The minimum 32°, the 22nd January, 1855.

My own Media were obtained by adding the maxima and media of each month during the ten years of observation, and dividing each by ten.

It is remarkable how very similar the results obtained by M. de Brea for the ten years from 1850 to 1860, are to those obtained by myself from the analysis of temperatures between 1859 and 1869. This similitude

is the more remarkable as different modes of arriving at media were resorted to. M. de Brea, as stated, took his observations at 6 A.M., 2 P.M., and 10 P.M., deducing the media herefrom. I only took the maximum and minimum, dividing the sum total to obtain the media. Such results show that the two methods are equally true—one series of observations all but exactly counterbalancing the other. The two series show also how very uniform the climate is, especially when a sufficiently large number of years are thus compared.

TABLE III.

Mean Maximum Temperature in shade in January and February, 1860, *on the Nile, and at Madeira, Malaga, and Mentone.*

	IN JANUARY.		IN FEBRUARY.
Nile	72	...	75
Madeira	66	...	67
Malaga	58	...	58
Mentone	52·8	...	55·9

TABLE IV.

Nile and Mentone compared. 1860.

The Nile observations are from Dr. Dalrymple's work on "Egypt."

	January.		February.			January.		February.	
	Minimum.					Maximum.			
	Nile.	Ment.	Nile.	Ment.		Nile.	Ment.	Nile.	Ment.
1	38	46	44	41	1	67	53	73	56
2	39	48	43	43	2	65	57	74	56
3	42	50	47	37	3	65	57	83	50
4	45	52	49	38	4	73	58	85	50
5	44	52	44	36	5	76	60	80	50
6	39	51	42	38	6	75	57	85	54
7	40	47	50	40	7	77	53	67	56
8	39	43	48	40	8	75	51	66	56
9	43	43	50	37	9	82	49	68	56
10	45	43	40	42	10	70	52	64	57
11	44	48	38	43	11	69	53	75	56
12	41	48	43	41	12	75	52	77	55
13	43	43	44	38	13	76	50	80	53
14	43	43	43	39	14	79	51	81	55
15	44	46	42	38	15	66	54	84	57
16	43	43	50	39	16	70	51	86	57
17	51	42	50	42	17	77	53	88	55
18	49	45	55	39	18	73	53	90	55
19	44	45	40	39	19	67	53	66	57
20	45	47	40	38	20	73	50	70	55
21	45	45	50	37	21	73	51	74	54
22	45	45	45	42	22	76	53	77	57
23	51	44	50	40	23	75	48	74	55
24	50	40	40	40	24	75	50	79	57
25	50	43	40	42	25	78	49	80	58
26	51	40	49	42	26	82	50	74	57
27	48	40	48	42	27	75	49	65	55
28	46	42	40	43	28	71	51	65	61
29	45	41	49	44	29	76	51	66	62
30	51	41	—	—	30	75	48	—	—
31	42	42	—	—	31	82	52	—	—
Media	44·6	44·8	45·2	40·0	Media	72·8	52·8	75·7	55·9

TABLE V.—FOREIGN CLIMATES (Sir James Clark).

PLACES.	Mean Annual Temperature.	MEAN TEMPERATURE OF SEASONS.				MEAN TEMPERATURE OF MONTHS.											
		Winter.	Spring.	Summer	Autumn	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Cairo	72·17	58·52	73·58	85·10	71·48	58·10	56·12	64·58	77·90	78·26	83·66	85·82	85·82	79·16	72·32	62·96	61·34
Santa Cruz (Canaries), 40 ...	70·94	64·65	68·87	76·68	74·17	63·84	64·29	67·17	67·32	72·12	73·89	77·27	78·89	77·43	74·66	70·43	65·82
*Ceylou (Hill District), 44 ...	70·18	69·30	70·78	69 54	71·29	69·15	69·49	70·84	72·70	71·42	69·43	69·83	68·86	70 83	70·88	70·64	69·73
†Malta, 37	67·30	57·46	62·76	78·20	71·03	56·50	56·30	58·10	61·80	67·40	73·80	79·60	81·20	77·80	71·10	64·20	59·60
Corfu, 38	65·55	54·28	59·85	77·09	70·97	52·57	51·85	54·57	58·28	66·71	72·28	77·71	81·28	78·28	70·85	63·78	58·42
‡Madeira, 41	64·96	60·60	62·36	69·56	67·30	59·71	60·28	61·86	62·03	63·44	66·90	70·04	71·88	71·28	66·76	63·96	61·44
Palermo [added]	64·40	53·1	59·3	74·7	66·8												
Algiers [added]	64·	55·	66·	77·	60·												
*Port Jackson (N. S. W.), 45...	62·89	54·62	63·45	70·93	64·03	61·67	71·61	69·64	64·05	59·68	54·91	53·86	55·31	59·34	63·51	67·73	69·20
Cadiz, 39	62·83	52·90	59·53	70·43	65·35	51·40	53·73	55·21	59·64	63·75	68·16	70·27	72·86	70·17	67·10	58·80	53·58
St. Michael's (Azores), 42 ...	62·40	57·83	61·17	68·33	62·33	59·00	59·00	59·50	61·00	63·00	67·00	68·00	70·00	68·00	63·00	58·00	55·60
Naples, 30	61·40	48·50	58·50	70·83	64·50	46·50	48·50	52·00	57·00	66·50	71·00	75·00	76·50	72·50	65·00	54·50	50·50
Mentone [added]	60·80	49·5	60·	73·	55 6	48·2	48·5	53·	57·2	63·	70·	75·	75·	69·	64·	54·	49·
Rome, 28	60·70	48·90	57·65	72·16	63·96	47·65	49·45	52·05	56·40	64·50	69·17	73·30	74·02	69·50	63·60	58·80	49·62
Pisa, 31	60·60	46·03	57·20	75·15	62·80	44·00	48·11	51·52	56·30	63·75	70·59	77·50	77·50	73·50	62·62	52·30	47·00
Genoa, 32	60·37	44·57	58·60	75·03	62·94	41·65	47·47	51·07	60·30	64·45	73·50	75·10	76·50	73·20	64·70	51·05	45·60
Toulon, 23	59 90	43·30	53·70	74·30	59·00	40·00	44·00	48·00	55·00	68·00	70·00	74·00	79·00	64·00	62·00	51·00	46·00
Marseilles, 24	59·50	45·50	57·56	72·50	60·08	44·80	45·06	49·07	...	...	...	...	...	...	58·20	50·40	46·60
Nice, 33	59·48	47·82	56·23	72·26	61·63	45·85	49·00	51·45	57·00	63·00	69·00	73·59	74·30	69·35	61·85	53·70	48·60
Florence, 34	59·00	44 30	56·00	74·00	60·70	41·00	45·00	48·00	56·00	64·00	69·00	77·00	76·00	70·00	59·00	53·00	47·00
*Port Philip (N. S. W.), 46 ...	58·98	50·07	58·40	67·50	59·97	67·62	68·94	65·73	58·61	55·59	50·93	49·23	50·06	54·51	58·19	62·51	65·94
*Auckland (N. Z.), 47	58·43	50·68	56·82	66·38	59·82	67·91	67·33	64·24	60·49	54·74	51·41	48·99	51·66	53·99	56·41	60·08	63·91
Avignon, 25	58·20	42·60	57·13	74·66	59·00	42·00	43·50	50·50	55·00	66 00	72·00	76·00	76·00	67·00	60·00	50·00	43·30
Montpelier, 26	57·60	44·20	53·33	71·30	61·30	42·00	45·00	47·00	53·00	60·00	67·00	72·00	75·00	71·00	61·00	52·00	46·00
Pau, 27	56·18	41·86	54·06	70·72	57·39	41·20	43·60	48·80	51·80	61·60	68·20	70·60	73·40	67·40	58·20	48·60	42·80
Sienna, 35	55·60	40·50	54·10	70·80	57·10	39·70	40·22	46·20	53·70	62·40	67·50	72·80	72·30	66·00	58·30	47·10	41·70
Baths of Lucca, 36	55·00	...	...	68·17	...	...	...	...	53·00	60·50	63·00	70·00	71·50	66·00	...	...	...
Paris, 22	51·50	38·43	50·40	64·47	52·30	35·60	40·50	43·50	49·60	58·10	62·50	65·70	65·20	60·40	52·40	44·20	39·20

* Common Thermometer. † Doubtful. ‡ Register Thermometer.

REMARKS

ON THE

THERMOMETRICAL TABLES.

THE RETURN HOME.

THE analysis of the preceding tables will explain and substantiate the details I have given respecting the climate and vegetation of Mentone.

My own table gives the result of thermometrical observations taken during the six winter months, from November to April, inclusive, for ten years, from 1859 to 1869. These observations were taken with care by the means of self-registering thermometers made by Negretti for scientific observation. I preferred taking maxima and minima to making observations at 6, 2, and 10 P.M., as did M. de Brea, whose results for the ten preceding years I give in Table II. It is remarkable how very nearly we arrive at the same figures by these different modes of observation in the two successive decades. The table speaks for itself; but I would add a few remarks in elucidation of the results obtained.

The first winter that I spent at Mentone, 1859–60, the lowest night temperature was 35° on the 17th December. The thermometer never descended lower than 37° on any other occasion. In the second winter, 1860–61, the lowest point attained was 32° on two nights in December, the 22nd and 23rd. On no other night did the thermometer mark a lower temperature than 37°, as in the previous winter.

In the winter of 1864–5, the first night that the thermometer descended below 40° Fah., was on the 24th of December. During that month, and the four following ones, the thermometer was below 40° thirty-two nights, viz. :—

December	4
January	6
February	11
March	10
April	1
	32

Thus from the first night that the thermometer descended below 40°, December 24th, to the last, April 1st, or during 122 days, it was 31 times below 40°. The two lowest temperatures recorded were February 22nd, 33° Fah.; and March 25th, also 33° Fah. My thermometers never reached the freezing point 32°, although it sometimes froze on these colder nights in exposed situations. Generally, however, the thermometer on the cold nights was between 36° and 40°, and then it did not freeze anywhere.

During the four cold months of this winter, December, January, February, and March, the wind was principally from the northerly quarter. It blew from that direction 84 days out of the 121—leaving 37 for southerly winds.

December	15	North winds.
January	25	
February	24	
March	20	
	84	

These days were all but invariably days of brilliant sun-

shine, with a blue sky. They are the fine-weather days of the winter climate of this part of Europe. On the days when the south winds blew, there was nearly always cloud, and often rain.

Thus, during the 121 days of the four winter months, there were 29 days of rain, and 92 days of fine fair weather. Of these rainy days, 20 occurred with south winds, and 9 with north winds:—

RAINY DAYS.

December	10	South W.	8
		North.	2
January	5	South.	3
		North.	2
February	2	South.	2
March	12	South.	7
		North.	5
	29		29

In all the winters that I have passed at Mentone a great fall in temperature has coincided with northerly winds and with extreme and unusual cold in the north of Europe. In 1859-60 the frost was very severe and prolonged throughout the north, when the temperature was low with us, and in 1860-61 the thermometer descended 40° below the freezing point in England, at the time we had cold weather. The cold was more severe this winter than had been known for thirty years throughout Europe. During the winter of 1864-65 there were also spells of exceedingly cold weather all over Europe. Rivers were frozen over, and snow lay many feet deep on the ground, reaching the most southern parts of France. On one occasion, at the end of December, the railroad between Narbonne and

Toulouse was buried in the snow, and many people lost their lives.

Indeed I have always remarked at Mentone that exceptionally cold and stormy weather has coincided with northerly winds, and with intense frosts or violent storms in the north and centre of Western Europe. We are clearly not out of the influence of extreme meteorological disturbances occurring in the northern regions of Europe, although we feel them but faintly. At those times we have generally a north-westerly or north-easterly wind, the sun is obscured by clouds, the higher mountains may be covered with snow down to the level of the olive-groves, and cold rain may fall on shore. These are our worst days, but fortunately such weather, as stated, never lasts more than a day or two. When on these occasions we receive newspapers and letters from home a few days later, we invariably hear of fearfully cold weather on land, and of storms at sea, with north-west or north-east winds.

It will be perceived that although the night minimum seldom descends below 40° during December, January, February, and March, it also seldom ascends above 50°, and is generally between 40° and 50°. The day maximum in the shade varies from 50° to 58°, although occasionally below 50°. This latter temperature always coincides with a low night temperature and an obscured sky, nearly always with snow on the mountains and rain on the shore, and with north winds.

A careful scrutiny of the tables of Mentone temperature brings out a peculiar and important feature every year reproduced—viz., the regularity with which the temperature descends in the autumn, and ascends in the spring. Often for several nights and days together, the night minimum and the day maximum reach exactly the same figures; they fall and rise gradually and uniformly. We must ex-

cept the spells of bad weather just described coinciding with extreme cold all over Europe, the result of north or polar hurricanes. The range of temperature, that is, the daily difference between the minimum and maximum, is slight, seldom reaching more than 10°, an important point for invalids. Such a state of things constitutes an equable climate.

The climate of England is very different. Few persons are aware how very uncertain it is, and how often, even in the summer months, the thermometer goes down nearly to the freezing point. The following is a reliable statement extracted from the "Gardener's Chronicle," of September 3rd, 1864.

"From October 1st, 1863, to June 6th, 1864, at Worksop, Nottinghamshire, there were 164 frosty nights, and on 46 more the register was under 40°. Thus for eight months and six days the register was not above 39° as many nights:—

"October	12	Frosty nights.
November	15	
December	24	
January	28	
February	26	
March	28	
April	16	
May	9	
June	6	
	164	

"In August cold nights again set in, and on the 19th, the thermometer fell to 27°; on the 20th to 35°; on the 21st to 31°; on the 22nd to 26°; on the 23rd to 33°."

It is worthy of notice that in April and May at

Mentone the wind is generally in a southern quarter, and yet there is no rain. The wind is, however, only a gentle "aura," or zephyr, and the mountains are already so warmed by the sun that they are warmer than the wind. Under such conditions the sea remains calm, and there is no precipitation of rain.

It is the minimum and maximum temperature of any given region that principally regulates vegetation, and also to a great extent climate. I believe, consequently, that on such data only can we form a true and accurate idea of the real climate of any locality. If a thermometer is fairly placed according to the rules adopted by scientific meteorologists, and the instruments used are good, there can be no possible deception by adopting this mode of observation. Thermometrical observations are very liable to error in sunny climates, unless extreme precaution be taken to avoid undue solar influences, reflected heat, and exceptionally sheltered situations.

I would remark that media are very deceptive when they are drawn from the addition and division of maxima and minima observations. Thus the medium temperature of 80° as the day maximum, and of 40° as the night minimum is 60°, which gives a very false idea of the real climate of a locality. Where such media are observed the winter medium of 60° implies a mild, agreeable climate, whereas, it is made up of intense heat in the day, and of chilly cold at night, with a daily range of 40°, as on the Nile.

It is impossible also to judge what a climate really is when "seasons" are spoken of, and season media are given. Thus, October, November, and December are called the autumn season, and a high medium temperature is reached for the autumn quarter by its including the month of October, which is a warm month in most regions of the

Mediterranean. The same remark may be made with reference to the winter quarter, which includes March, also a comparatively warm month, in the day-time at least, in these regions. The real winter on the shores of the Mediterranean is limited to December, January, and February.

Many observations in health localities likewise are made with a mental bias which invalidates them. Thus, had I made my observations at ten o'clock, A.M., seventy feet from the ground, and within the influence of reflected heat from the sun, I might have obtained a day temperature of 60° throughout the winter.

Dr. Dalrymple, in his interesting work on the Climate of Egypt,* gives the minima and maxima for the months of January and February accurately observed in his Nile boat. The night minimum was a fraction lower than at Mentone during the month of January, 1860 (from latitude 27° 13′ to 22° 10′). During the month of February the mean was 5° higher, as will be seen by the comparative Table No. IV. (from latitude 25° 55′ to 31° 46′), showing the more rapid advance of spring. The day maximum, on the contrary, was much higher during both months, being all but constantly between 70° and 80°, and sometimes above 80°. The mean of January was as high as 72°·8, that of February 75°·7. Such a range must be very trying, especially to chest cases—from 40° or 45° at night to 70° or 80° or even 90° in the day. At Mentone the mean maximum of January in the same year was 52°·2; that of February 55°·9, the usual medium for the month.

Although the climate is dry at Mentone, whenever in the autumn or in the spring the thermometer is at or above 70°, most of the chest invalids feel oppressed, although less so than in England. They appear to get on best

* "Meteorological and Medical Observations on the Climate of Egypt." 1861.

with a dry, sunshiny, cool atmosphere, such as generally prevails, with the thermometer at 54° in the shade north, and from 60° to 64° in the shade south.

Moreover, a low night temperature, which has clearly to be encountered on the Upper Nile (latitude 22°), and in the Great Desert of Sahara, as well as on the Mediterranean coast, is better met by a confirmed invalid in a comfortable, well-built house on land, than in an Arab tent, or in a boat on a river, even if that river be the Nile.

When the Nile journey is contemplated, we must also take into consideration the discomforts of the long journey, the proverbial unhealthiness of Alexandria and Cairo, where some time has to be spent both going and returning, and the actual fatigue of constant change and motion.

At Malaga and Madeira the day maximum is also higher than at Mentone, according to Dr. Edwin Lee,* Dr. Francis,† and Mr. White,‡ as seen in Table III. The night minimum of Malaga is not given by these authors. Mr. White says, that at Madeira the lowest point attained by a self-registering thermometer in 1841 was, in January, 51°; in February, 53°. The mean minimum was 55° for both months—much higher, as we have seen, than either the Nile or Mentone media.

In Table III. I have given the comparative mean maximum heat of the Nile, Madeira, Malaga, and Mentone during January and February.

* "Spain and its Climates, with a Special Account of Malaga." By Dr. Edwin Lee. Pp. 64. 1855.

† "Change of Climate, with an Account of the most eligible Places of Residence for Invalids in Spain and Portugal." By Dr. D. S. T. Francis. 1853.

‡ "Madeira: its Climate and Scenery." By Messrs. White and Johnson. 1865.

In Table II., I have given M. de Brea's media for Mentone temperature for each month, founded on ten years' observations, as compared with my own. His observations prove that the summer temperature at Mentone is moderated by the proximity of the sea, and of the mountains, as well as that of the winter. The summer maximum in ten years was only 89°, whereas in Paris, London, Berlin, and Vienna the thermometer in summer often rises above 90°.

The fact, that in northern climates the summer-day heat may be very intense, quite tropical, whilst the winter cold may be very severe, quite polar, and that for several weeks together, shows the fallacy of trusting to media for an idea of climate. Thus the annual media of Marseilles (59° 5′) and that of Mentone (60° 8′) are all but the same, and yet the climates are totally different. At Mentone, we have a more southern vegetation than on the north shores of Africa, whilst at Marseilles the vegetation is all but that of the north of France.

These thermometrical tables and data also illustrate a very important fact, which is generally ignored. There is no escaping winter in the northern hemisphere north of the tropics (lat. 25°)—or even for some degrees south of lat 25°. Dr. Dalrymple found in Upper Egypt, on the Nile, the thermometer descend to 42° on the 31st of January in latitude 22° 10′. Cold nights, cold rain, snow on but slightly elevated mountain tops, are met with in winter, to within twenty degrees of the equator, unless immunity from cold is obtained by exceptional and special protection from the north, as at Mentone (lat. 43° 45′), or by insular position, as at Madeira (lat. 31°.)

To entirely escape winter influences, therefore, if it be desirable, the invalid or traveller must visit the tropics, or pass the equator, and seek summer in the southern

hemisphere, at the antipodes, the Cape of Good Hope, South America, or Australia.

THE JOURNEY TO AND FROM THE RIVIERA.

Firstly, I would advise no invalid to endeavour to reach the Riviera before the last week in October. September and the early part of October are still warm, indeed sometimes oppressively hot and moist. Moreover, the probability is, that in October will occur the two or three weeks of continued rain which principally constitute the rainy season. The heat and moisture are not only unpleasant but unwholesome, and apt both to weaken the constitution and to give rise to liver and intestinal congestion and irritation, and to severe diarrhœa, sometimes bordering on dysentery.

I myself never try to reach Mentone before the 20th or 22nd of October, out of regard for my personal welfare; I would rather remain anywhere on the road than do so. The very conditions of shelter and protection that make Mentone and the Riviera so desirable a residence when once cold weather has commenced in the south of Europe, render it close and oppressive in the autumn.

It is the same in England with Torquay and the Undercliff of the Isle of Wight. The worst time of the year for these and similarly situated localities is the month of August and the early part of September, and that from the very circumstance of their being peculiarly sheltered and protected.

Every year, when I reach Mentone, I find these facts exemplified. Within a few hours of my arrival I am called in to patients and friends suffering from severe diarrhœa, and the longer they have been in the place the more severe is the attack and the more difficult it is to subdue. If from fortuitous circumstances the south is reached too early, it would be better to spend a week or two

at Avignon, Toulon, or Nice, which are more open, and, at this time of the year, cooler and pleasanter.

The month of September is generally fine, pleasant, and safe in England, even for confirmed invalids, if they take care to avoid the sometimes chilly evening and morning air. By the end of the first week in October, the equinoctial gales are over, and it is time to depart, as the English climate sometimes rapidly deteriorates both at night and day. A cloudy sky and dense morning fogs may then become the rule.

The invalid should go down to Folkestone or Dover in the morning or afternoon, and sleep there; the next day, if the weather is tolerably fine, he can cross. If the sea is very rough, it is absolute folly so to do; the depth of the water in this part of the British Channel is not great, and the sea soon rises and soon falls. It may thus be rough in the morning and smooth in the afternoon, or *vice versâ*. Moreover the hotel accommodation is very good;—the Lord Warden at Dover, and the Pavilion at Folkestone, are both comfortable hotels.

The last ten days of September and the first week of October, the sea, in the straits between the French and English coasts, is always rough. Then generally comes a lull, a period of calm, as I learnt many years ago. When actively engaged in London practice, I always took a holiday in September, and generally spent it on the Continent—returning for the opening of the London medical session, on the 1st of October. I usually had frightful passages, until I remembered that I was crossing just at the middle of the autumnal equinox. I then remained a week longer abroad, and became as fortunate in the sea passage as I had previously been the reverse.

If the passage is effected without much suffering and in the morning, even an invalid may continue the journey

to Paris the same day; by express train, it takes about four hours. In Paris there are innumerable good hotels; the Louvre, the Grand Hotel, the Bedford, may be mentioned.

If France has been reached early in October, it may be well to remain in the north for a week or ten days before proceeding south, to avoid heat and rain. The more open parts of Paris constitute a healthy autumnal residence if the weather is fine, and there is always a charm about it, even for invalids.

Fontainebleau, which is thirty miles south of Paris, on the railroad to Lyons, is better still. The town is small and clean, the hotels airy and comfortable, and the forest scenery around extensive and very beautiful. The "Château," also, is full of interesting historical recollections. Indeed, I do not know of a more healthy or more pleasing resting-place for an invalid, either on his way from the north to the south in autumn, or on his return from the south in spring. Fontainebleau has certainly, in both seasons, a ten days' advantage over Middlesex or Surrey; the autumnal fine weather continues ten days longer, and the spring begins ten days sooner.

Towards the 15th or 20th of October, according to the season, the journey should be continued to Lyons. The morning express from Paris to Lyons, Marseilles, and Nice, leaves Paris at 11 A.M., reaching Montereau at 12.35, where passengers from Fontainebleau are taken up. This train reaches Dijon at 5.29, and Lyons at 9.56 P.M.; Marseilles, 6.33 A.M. the next morning, and Nice at 4 P.M.; Monaco 4.39 on that day.

If the journey to Dijon is felt to be sufficient, good accommodation can be obtained there for the night, but the hours for the express trains the next day are awkward As twenty-eight minutes are given for a very comfortable.

table-d'hôte dinner, most travellers prefer to go on and to sleep at Lyons, where there is a first-rate hotel, the Grand Hôtel de Lyon. This hotel is one of the large and comfortable hotels that have recently been built in Paris and in other large towns of France. It has, however, the great disadvantage of being at least two miles from the railroad in the centre of the town. To those who can put up with less luxurious accommodation I would recommend the Hôtel de l'Univers, which is within a stone's throw of the station; it is clean and kept by very civil people.

The first "day" express from Lyons to Marseilles, the 7.15 A.M. from Paris, leaves at too early an hour in the morning for invalids, as does the second "day" express, 7.30. I therefore advise them to make the night one of complete rest, to breakfast quietly, and to take the 10.30 A.M. omnibus train to Valence, which is reached at 2.21, or to Avignon, 7.2.

The inn at Valence (Hôtel de la Poste) is second-rate, but still will do for a night. Valence is a pleasing little place, with a tree-planted promenade, looking over the broad and rapid Rhone. In one of the streets is shown a very unpretending house in which Napoleon Bonaparte lived for above a year, when lieutenant in a regiment quartered in the town. I always go to see it; the idea is strange of the great Emperor lounging about this little provincial town as lieutenant in a marching regiment. What were his thoughts, his views of the future, the limits, then, of his ambition?

The second Marseilles express starts from Valence in the morning at 9.56 A.M., a much better hour, and, refreshed by two good nights' sleep, the traveller is better prepared for another long journey.

The arrival at Avignon by the slow train is rather too late (7.2). Montelimar (3.53) might be chosen, but the

inn is even inferior to that at Valence. It is clean, but thoroughly French, such as is found in third-rate French towns not frequented by foreigners.

The second express from Lyons leaves Montelimar at 10.52; Avignon, at 1; reaches Marseilles at 3.45 P.M.; and Toulon, at 6.18. Toulon is a good point at which to remain a few days, either to recruit or to wait. It is so far south, and so sheltered, that at the end of October it is still summer. There are the dockyards and port to visit, and the convict establishment, a terribly interesting sight. Hyères, also, is within a drive, and deserves a visit as the first winter station met with.

Most travellers who take the day express through from Lyons sleep at Marseilles, where there are several splendid hotels—such as the Grand Hôtel de Marseilles and the Grand Hôtel de Louvre. Marseilles is quite a different town to what it was ten years ago; the French Emperor has transformed it as he has transformed Paris. Formerly it was a dirty, close, unhealthy city, to be avoided rather than courted. Now, handsome streets and boulevards have been opened out in every direction, light and air have been let in, and a magnificent port, La Jolliette, has been constructed. Marseilles has thus become a first-class and elegant city, where a few days may be passed safely and agreeably. The quick night express which leaves Paris at 7.15 P.M. passes Avignon at 9.22 A.M., and reaches Nice at 8.20 P.M., Monaco at 8.59, so that travellers who have slept at Avignon can then go through to Nice or Monaco in a day.

The Marseilles train for Nice and Monaco leaves (it is the same) at 1.15; as it stops nowhere for refreshments, they should be provided for the journey. At Nice there are many good hotels; among the best may be named the Hôtel des Anglais, on the public garden.

I have cautioned invalids against going south too soon, and I must now caution them against going too late. It is desirable to get to the south side of the Esterel mountains, between Toulon and Nice, before the end of October —if possible by or before the 25th. Otherwise there is a risk of having to encounter cold weather; even in the south of France cold rain, with north winds, may fall by the end of that month. Those who delay their journey until November often suffer from this cause throughout their entire progress.

I am persuaded that for ordinary invalids, the quiet, cautious mode of travelling above sketched out is the best. If good nights are secured, and a quiet breakfast is taken at the usual hour, travelling during the day is very easily borne, and the invalid arrives at the journey's end without feeling wearied. There is no lost ground caused by broken nights and extra fatigue to make up. There are, however, cases in which it may be desirable to travel more rapidly. With young children, who can lie down, and who sleep nearly as well in a train as in their beds, it is better to push on—to go direct from Paris to Nice, or Monaco, by the 7.15 P.M. fast train. Again, with invalids who feel every change from the train as a dreadful fatigue and trial, it may also be as well to pack up comfortably in an invalid carriage, and not to loiter on the way.

On the French lines of railway they have carriages which they call *coupé lits*. They are carriages without divisions, so that an invalid can lie at full length throughout the journey. There are three seats in these carriages, and the charge is for four; they are to be had by application, the day before, at all the principal stations.

When the journey is made by stages, the plan is to leave the luggage at the station, *au dépôt*, merely taking a carpet-bag with necessaries. The French railroad company

will not allow passengers the convenience of through tickets, with power to stop on the way, for what motive I cannot imagine. Through tickets can be taken from London to Marseilles, but then the traveller is only allowed to break the journey at Paris and Lyons.

The fare from London to Paris, by Folkestone tidal steamer, is: first class 2*l.* 13*s.* 10*d.*; second class, 2*l.* From Paris to Marseilles by express, first class only, 96 frs. 65c. (not quite 4*l.*); on to Nice, 25 frs. 20 c. (1*l.* 2*d.*) The steamer from Marseilles to Nice is 32 frs. (1*l.* 5*s.* 8*d.*)

Bradshaw in his Continental Guide, to which I must refer my readers for further details, gives the entire expense of the journey from London to Nice, first class, as 8*l.* 9*s.* 6*d.*; second class, 6*l.* 6*s.* 3*d.*

If the traveller going to the Riviera sleeps at Nice, he can either pursue his journey to Monaco or Mentone by rail, or be driven over the Turbia mountain in a carriage. In the latter case he should start at twelve, so as to get in at four; the drive is a very lovely one. The cost of a carriage is about thirty-five francs, with five francs to the driver.

Mentone may be easily reached by Lyons, Chambery, Mont Cenis, Turin, Genoa, and the Riviera; but I do not recommend this route to invalids. In October the pass of Mont Cenis is too cold; in September, Italy beyond the mountains is too warm. Nor can invalids choose this route on their return in May, as that is the month when the snow on the higher Swiss mountains usually melts, and when the passes are at their very worst.

Those, however, who are merely wintering in the south for pleasure, or who merely wish to recruit from overwork and over-fatigue, may easily make a very enjoyable progress on their way to their winter quarters. They can start early in September, pass through Switzerland, and over the Alps by the pass the least known to them, the Splugen, St.

Gothard, the Simplon, or Mont Cenis; and once out of the line of the railroads, take a *vetturino* carriage, avoid the railways, and make a pleasure tour. For instance, from Milan or Padua to Bologna, from Bologna to Florence and Pisa, from Pisa along the eastern Riviera to Genoa, and along the western to Mentone.

This is a very delightful excursion, which I made in years gone by, and which I never think of without pleasure. The best plan is to engage a comfortable *vetturino* carriage, charioteered by some good-natured man, and drawn by three or four good strong horses. The carriage may be chartered for a given journey or for an indefinite period.

This style of travelling—*vetturino*—used to be very common in the south of Europe, and is the most comfortable, pleasant, and hygienic of any for tourists not particularly pressed for time. Once the traveller has secured a roomy and easy carriage, with an intelligent, civil driver, both of which are to be had if sought for,—and once the agreement fixing the payment at so much the distance or so much a day has been duly signed and delivered, he may bid adieu to care. He becomes master of his movements, he can eat when he likes, walk when he likes, and sleep when he likes. Thus the greatest drawbacks to continued travelling are removed from his path.

It should be remembered, that in *vetturino* travelling, the driver for the time being is your servant, and must do your bidding, and everything should be arranged in conformity with previous habits and the laws of hygiene. Thus the journey becomes a pleasure, and a source of health instead of a trial of strength, as often occurs.

The plan which I generally adopted was to rise at six or seven, to take a cup of tea or coffee, and to start at seven or eight, the carriage being closed at the top as a protection against the sun, open at the sides, and prepared for

the day's campaign by a comfortable arrangement of umbrellas, books, maps, and provisions. The latter usually consisted of a basket of bread, biscuits, and fruit, provided before starting as a resource in case of difficulty. At nine or ten we stopped for breakfast, which can be obtained anywhere, if the traveller is contented with coffee, tea, chocolate, bread, butter, eggs, and honey. Then the journey is resumed, and at twelve or one the principal stoppage of the day takes place for the dinner of the driver and of his horses.

If the traveller wishes to make a solid lunch he can do so, if he is satisfied with his own more frugal supplies, the midday rest is a period of liberty, during which he can survey all around, analyse the habits and customs of the peasantry, study the architecture of their houses, farms, out-buildings, their agricultural operations, and the local botany. Finally, if agreeable, and weather permits, he can take a good hygienic walk in advance of three, four, or more miles. When tired he has only to sit down by the roadside in some picturesque nook until the carriage overtakes him. If the driver, as is usually the case, rests for a couple of hours, and four or five miles have been got over, it is nearly three before the carriage is again resumed. To me these midday strolls in advance were the pleasantest part of the day's journey. After that, progress is steadily made until six, when the final stoppage takes place. Then comes dinner, a walk, or a chat with your companions or some new acquaintance, a cup of tea, and an early retirement for the night.

The day's programme can be varied according to the wishes of the traveller, to health requirements, and time. For instance, the first start may only be made after an early breakfast, and the final stoppage may be made earlier or later. As already stated the traveller must re-

member that the driver is in his pay, and bound to submit to any reasonable demand, although most *vetturino* men will, if allowed, try to make their will and convenience the rule.

When the south of Europe is reached in the autumn, two great plagues have to be encountered—fleas and mosquitoes. For the former there is an admirable remedy in France with which I should advise all travellers to provide themselves from a chemist—viz., "*La Poudre Insecticide.*" A teaspoonful, more or less, according to the number of one's foes, sprinkled over the sheets, if good not too old, has an admirable effect. In the morning they are found lying on their backs, either dead or faintly struggling, and utterly powerless; a very pleasing sight.

This powder is composed of the flowers of a Pyrethrum, extensively cultivated in Persia, Armenia, and the Caucasus. Several species of the Pyrethrum are used, but that of the Caucasus is the best; it was introduced into France about the year 1850. Since then M. Willemot has procured the seed from the Caucasus, and has raised the plant, which proves quite hardy, and able to stand our winters. The species thus raised appearing to differ from that previously known, it has been named Pyrethrum Willemoti. The flowers, which resemble those of the ox-eye daisy, are cut off, powdered in a mortar, and preserved in well-corked bottles. The best way to use it is by means of a small pair of bellows, which are usually sold with it. It is said to be efficacious against all kinds of insects offensive to man, but is perfectly innocuous to him.

Mosquitoes are more difficult to deal with, and much more venomous antagonists. The higher we are the less numerous we find them, so we are recompensed, in one sense, for climbing up to a third or fourth storey. It is

well to remember, also, that light attracts them, and not to open the window at dark whilst there is a light in the room.

Where there are net mosquito-curtains, as in India, it is easy to keep mosquitoes at bay, but they are seldom met with; the curtains are mostly open, and so heavy that if closed the inmate is half-suffocated. Although mosquitoes are numerous on the Riviera, the bed-curtains are as defective there as elsewhere. It is quite worth while therefore for those who suffer from them, and especially for invalids, to have at once, on arriving, bed-curtains made of net, closed all round. They admit of the free passage of air, and as they are lifted up bodily at the side, they can be thoroughly closed again, and these vile pests can be kept at bay; then their war-song on the outside is heard with pleasure instead of pain. It is truly a painful position to lie defenceless in the dark, whilst these enemies of our race are remorselessly dancing around us, and announcing by their ferocious trumpeting the intended attack.

Mosquitoes continue venomous in the south as long as the nights are warm; the advent of cold nights in November seems gradually to take away their power of inflicting injury. I have observed the same thing in England; for insects exactly like the southern mosquitoes abound in wooded districts in the south of England. In cool summers, however numerous, they seldom or never bite, but in hot summers their venom is elaborated, and they become nearly as formidable as those of the Mediterranean shores. The warmer the autumn is in the south the longer they remain in the ascendant; nothing but really cold nights chills their ardour. Those who keep their bedroom very warm may have them as companions nearly all winter, for they both feed them at their host's expense, and are protected from cold.

Whether the invalid is leaving the north of Europe for the south in autumn, or the south of Europe for the north in spring, I firmly believe that it is essential for his welfare, that the journey should not be too hurried, too precipitate. The difference of climate, between the north and south of Europe, is so great, that there is absolute danger in too sudden a transition.

I see this fact exemplified every year, both in autumn and spring. Railways have all but annihilated space, and the facilities they afford to rapid travelling are so great that a traveller may leave the London Bridge station at 7.40 on Monday morning, by mail train for Paris, and be at Mentone for supper at 9.45 P.M. the following day, Tuesday. Unfortunately, invalids are not unfrequently tempted to adopt this "cannon-ball style of travelling," as I call it, and often pay a severe penalty for so doing. The transition from the cool, moist climate of England or Paris in autumn, to the dry, sunny, stimulating atmosphere of the north shores of the Mediterranean, is too sudden, and developes various forms of liver, intestinal, skin, and head disease. The same results follow in spring, on the return journey. Every spring the Paris physicians have to attend many patients, who, after spending the winter in the south, break down with bronchitis, pleurisy, rheumatism, after a rapid return journey to Paris early in the spring, and from the same cause, a too sudden change of climate.

A leisurely progress, both in descending south and ascending north, is the most prudent course to follow, not only for invalids but also for the sound. On the one hand they avoid needless fatigue, on the other they also avoid a too sudden transition from one decided climate to another.

When the return homewards has been decided upon, there is an all but universal wish on the part of the invalids to join sound friends, and to make a tour on the way home. Many years' experience, however, has convinced me that it is impossible effectually to pursue health and pleasure at the same time. I am persuaded that no greater mistake can be made than to endeavour to combine sight-seeing either with wintering abroad for health, or with the journey to and from the south. In other words, real invalids should never accompany strong, healthy, sight-seeing friends or relatives in their pleasure tours. They themselves should be the main consideration. They should neither start too early nor too late, about the second week in October, go direct to their destination by easy stages, reaching between the 20th and the 30th of October, and return home quietly when the fine weather is thoroughly established, towards the middle or end of May. And yet nearly all fall into the contrary error, especially on the return journey. As soon as March comes, the wildest travelling plans are formed—often by the greatest sufferers. The object is the restless Anglo-Saxon desire to see the world on the way home; the result is frequently to bring the invalid into every kind of danger.

A very pleasant lounging homeward journey may be made through the south of France, with little or no risk; but such a journey by no means satisfies the majority of our invalid well-read countrymen and countrywomen. Naturally enough it is Italy they sigh for, Italy they want to see: Genoa, Florence, Rome, Milan, Venice, the glorious Italian lakes, and the grand Swiss mountains, with their glaciers, their torrents, and their pine forests. Hence the danger. The unwholesome towns I have de-

scribed, the burning plains of Lombardy, the snow-covered passes of the Alps, are pregnant with danger, and should be avoided by the diseased, until they have regained health, and can once more defy the elements.

A delightful and perfectly safe journey may, however, be made in April, by those who are sufficiently strong and well to endure the fatigue of travelling, along both Rivieras to Genoa, Leghorn, and Pisa, and from Leghorn direct by sea to Marseilles, or through Corsica, by Bastia and Ajaccio, to Marseilles.

Corsica alone may be easily visited by way of Nice, and Sicily is also accessible from Genoa by sea direct, in forty-two hours. For the details of the journeys to Corsica and Sicily I must refer to the special chapters on those countries which I have visited in this invalid manner, with very great profit and delight.

The easiest and safest return journey in spring, however, is the one along the Riviera. Even a confirmed invalid may prudently, towards the middle of April or the beginning of May, travel slowly by carriage to Genoa; returning the same way, or taking a steamer to Nice or Marseilles. I have travelled many times by this route in spring, and have always greatly enjoyed its exquisite scenery, and that without the least fatigue.

On a calm day in spring the sea journey from Genoa to Nice only takes a few hours, and is very enjoyable, the steamer skirting the base of magnificent mountains all the way. As there are now boats every other day each way, it is always feasible to wait for fine weather.

I cannot better conclude than by an extract from the treatise of my esteemed friend, Sir James Clark, on "The Sanative Influence of Climate." This work, although it first appeared many years ago, still retains its position as a most valuable and comprehensive one on climate, and

any advice it contains deserves to be weighed and pondered by all whom it may concern.

"Too much is generally expected from the simple change of climate. It often happens that from the moment the invalid has decided upon making such a change, his hopes are fixed solely upon it; while other circumstances, not less essential to his recovery, are considered of secondary importance, and sometimes totally neglected. This is an error not always confined to the patient; his medical adviser frequently participates in it: nor is this difficult to be accounted for. The cases hitherto sent abroad have been, for the most part, consumptive, or other diseases of long standing, in which the ordinary resources of our art have failed; therefore, when change of climate has at last been determined upon, the physician, as well as the patient, is disposed to look upon it as the sole remedy.

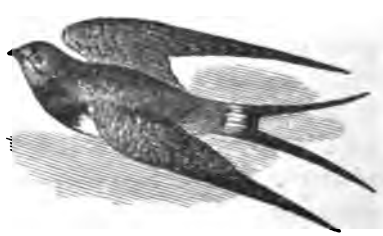
"But as I have witnessed on a pretty extensive scale the injury arising from this over-confidence in the unaided effects of climate, and the consequent neglect of other matters of no less consequence, I particularly request the attention of invalids to the following remarks.

"In the first place, I would strongly advise every person who goes abroad for the recovery of his health, whatever may be his disease or to what climate soever he may go, to consider the change as placing him merely in a more favourable situation for the removal of his disease; in fact, to bear constantly in mind, that the beneficial influence of travelling, of sailing, and of climate, requires to be aided by such a dietetic regimen and general mode of living, and by such remedial measures, as would have been requisite in his case had he remained in his own country. All the circumstances requiring attention from the invalid at home should be equally attended to abroad. If in some things greater latitude may be permitted, others will demand even

a more rigid attention. It is, in truth, only by a due regard to all these circumstances, that the powers of the constitution can be enabled to throw off, or even materially mitigate, in the best climate, a disease of long standing.

"It may appear strange that I should think it requisite to insist so strongly on the necessity of attention to these directions; but I have witnessed the injurious effects of a neglect of them too often, not to deem such remarks called for in this place. It was, indeed, matter of surprise to me, during my residence abroad, to observe the manner in which many invalids seemed to lose sight of the object for which they left their own country,—the recovery of their health. This appeared to arise chiefly from too much being expected from climate.

"The more common and more injurious deviations from that system of living which an invalid ought to adopt, consist in errors of diet; exposure to cold; over-fatigue, and excitement in what is called 'sight-seeing;' frequenting crowded and over-heated rooms; keeping late hours, &c. Many cases fell under my observation, in which climate promised the greatest advantage, but where its beneficial influence was counteracted by the injurious operation of these causes."



HOMEWARD BOUND.

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